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**BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA**

TECHNICAL MEMORANDUM

**STOCKPILE PLACEMENT/DISPOSITION EVALUATION
STOCKPILE SP-35**

To: Mr. Brian Mossman
Boeing Realty Corporation
3855 Lakewood Blvd.
Building 1A MC D001-0097
Long Beach, CA 90846

From: Haley & Aldrich, Inc.

Date: June 3, 2002

Re: Stockpile Placement/Disposition Evaluation, Boeing Realty Corporation, Stockpile SP-35,
Former C-6 Facility – Parcel C, Los Angeles, California

Haley & Aldrich, Inc. is herein providing this technical memorandum to summarize our recommendations regarding the onsite placement of temporarily stored soil at Parcel C of the Boeing Realty Corporation's (BRC's) Former C-6 Facility in Los Angeles, California (subject parcel).

OVERVIEW/PURPOSE

Drill cuttings generated during the installation of vapor extraction wells (2-VEW-16 and 2-VEW-17) were removed and placed in a roll-off bin. These stored soils are herein identified as Stockpile SP-35. Approximately 6 cubic yards of soils were collected in the roll-off bin and labeled. Representative samples collected from these soils were evaluated using human health risk assessment and groundwater protection evaluation procedures to determine whether or not the soil could be reused onsite or if it should be transported offsite to regulated treatment/disposal facilities. The evaluation methodology and the onsite placement/offsite transport recommendations are presented herein.

STOCKPILE CHARACTERIZATION METHODOLOGY

The samples obtained from Stockpile SP-35 are discrete samples. Each of the stockpile samples was tested for suspected chemical constituents following the protocols presented in the Los Angeles Regional Water Quality Control Board-approved (LARWQCB) sampling and analysis plan for the subject parcel and the subsequent LARWQCB-approved addendum and supplements. The soil samples collected from Stockpile SP-35 were tested for volatile organic compounds (VOCs), extractable petroleum hydrocarbons (TPH), metals, and polynuclear aromatic hydrocarbons (PAHs).

Boeing Realty Corporation
3760 Kilroy Airport Way, Suite 500
Long Beach, CA 90806
Telephone: 562-627-4900
FAX: 562-627-4906

6 June 2002
C6-BRC-T-02-014

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Attention: John Geroch

Subject: **STOCKPILE PLACEMENT/DISPOSITION EVALUATION,
STOCKPILE SP-35, FOR BOEING REALTY CORPORATION,
FORMER C-6 FACILITY, 19503 SOUTH NORMANDIE AVENUE,
LOS ANGELES, CA**

Dear Mr. Geroch:

Please find enclosed for your review, a copy of the subject document prepared by Haley & Aldrich Inc, for Boeing Realty Corporation.

If you have any questions concerning this document, please contact the undersigned at 562-593-8623.

Sincerely,



Stephanie Sibbett
Boeing Realty Corporation

Cc: Mario Stavale, Boeing Realty Corporation

enclosure

It is assumed that these samples represent the maximum concentrations of chemicals detected in the stockpile.

SAMPLE RESULTS

The laboratory data for the stockpile samples is presented in Appendix A. Sample results indicate concentrations of VOCs, TPH, and PAHs were below the laboratory detection limits. Metals were detected in concentrations above the laboratory reporting limits.

STOCKPILE EVALUATION METHODOLOGY

The stockpile sample results were evaluated using screening human health risk assessment (SRA) procedures as described in the November 29, 2000 Risk Assessment Work Plan (RAWP) for Parcel C following the decision process summarized in Figure 1. The stockpile sample results were compared to the representative chemical concentrations (exposure point concentrations) used in the SRA for Parcel C. In addition, maximum concentrations were evaluated to assess whether concentrations of chemicals in the stockpile have the potential to degrade existing groundwater quality.

Human Health Risk Evaluation

The maximum concentrations detected in the stockpile were compared to the exposure point concentrations used in the Parcel C risk assessment (i.e. the lesser of the maximum concentrations or the 95% upper confidence level concentrations). Where the stockpile concentrations were greater than the Parcel C exposure point concentrations, the stockpile concentrations were used in the Parcel C sitewide risk assessment calculations to assess whether adding the stockpile to Parcel C resulted in risk above the LARWQCB- and Office of Environmental Health Hazard Assessment (OEHHA)-approved acceptable target risk levels. Haley & Aldrich presented these Parcel C human health risk calculations in a report titled *Soil Investigation, Shallow Soil Remediation and Screening Level Risk Assessment, Boeing Realty Corporation Former C-6 Facility, Parcel C, Los Angeles, California* dated March 2002.

Groundwater Protection Evaluation

Even though shallow groundwater beneath and in proximity to Parcel C is not used as a domestic water supply, the evaluation conservatively assumed potential downward chemical migration from soil resulting in possible degradation of the Bellflower aquitard to levels greater than the California drinking water standards (i.e. Maximum Contaminant Levels [MCLs]). The assessment was conducted assuming a conservative scenario regarding chemical migration and mixing in groundwater following approved EPA and LARWQCB methodology and assumptions. This evaluation was conducted by comparing maximum concentrations to site-specific soil screening levels (SSLs) derived from primary MCLs. The SSLs are presented in Appendix B.

Initial site-specific SSLs were derived using the formula presented in Section 2.5 of the EPA document entitled *Soil Screening Guidance: Technical Background Document (TBD)*, dated July 1996, and site-specific geotechnical parameters. The EPA SSL equation is a partitioning formula, which does not account for chemical attenuation during migration in soil or mixing with groundwater. To better represent contaminant migration in the soil column, an attenuation factor was applied to the

initial SSL. This attenuation factor was obtained from Table 5-14 of the LARWQCB's May 1996 *Interim Site Assessment & Cleanup Guidebook*, assuming site-specific average soil particle size distributions, and a distance of 53 feet from soil impacts to the groundwater table (i.e., stockpiled material to be placed onsite at a maximum depth of 12 feet below ground surface (bgs) or shallower, and the water table is located at a depth of 65 feet bgs). An EPA default dilution attenuation factor (DAF) of 20 was also applied to the initial SSL to account for limited groundwater mixing. This EPA default value is presented in the above-referenced July 1996 EPA document, and was used by EPA to develop generic SSLs. The resulting site-specific SSL is, thus, equal to the initial SSL (assuming no soil attenuation or groundwater mixing) multiplied by the product of a soil attenuation factor and a groundwater mixing factor. A comparison of the SSLs to the maximum reported chemical concentration and detection limit concentrations indicates that these concentrations are less than the SSLs.

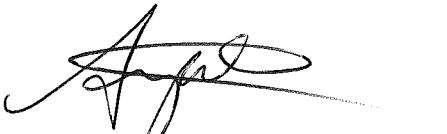
RECOMMENDATIONS

The recommendation for onsite reuse of the stockpile is based on whether the target risks are exceeded after addition of the maximum detected and detection limit concentrations in that stockpile and on whether these concentrations may degrade groundwater quality to concentrations greater than MCLs. If the estimated risk remains below the target risk levels and chemical concentrations within the stockpile would not degrade groundwater quality to concentrations greater than MCLs, it is recommended that the stockpile be reused at Parcel C. If the estimated risk is greater than a target risk level or if chemical concentrations may degrade groundwater quality to concentrations greater than MCLs, it is recommended that the stockpile be transported offsite at a regulated treatment/disposal facility.

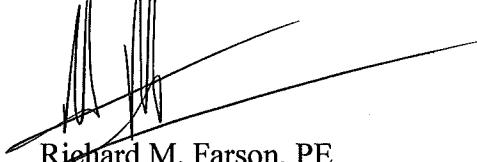
A summary of the recommendations for the stockpiles is presented in Table 1. It is recommendation of Haley & Aldrich that Stockpile SP-35 be re-used at any location in Parcel C.

Should you have any questions concerning the contents of this memorandum or require additional information, please contact either of the undersigned.

Sincerely yours,
HALEY & ALDRICH, INC.



Anita Broughton, REA, CIH
Risk Assessment Task Manager



Richard M. Farson, PE
Senior Engineer



Attachments:

- Table 1 Recommendations for Stockpiles SP-35
- Figure 1 Soil Stockpile Reuse Protocol
- Appendix A Laboratory Reports
- Appendix B Soil Screening Level (SSL) Calculations

Table 1
Recommendations for Stockpiles SP-35
BRC Former C-6 Facility, Los Angeles, California

Stockpile No.	Sample IDs	Approx. Volume	Analyses	Acceptable for Onsite Reuse? (Yes or No)	Restrictions on Parcel C Placement?	Recommendations
SP-35	2_VEW_16_5D050102_001, 2_VEW_17_5D050102_0001,	~ 6 cy	Metals, TPH, VOCs, and PAH	Yes	No	Results from soil samples collected from drill cuttings contained TPH, VOC, and PAH concentrations below laboratory detection limits. Metals concentrations were below the exposure point concentrations used in the Parcel C risk assessment.

cy = cubic yards

Figures

FORMER C-6 FACILITY

SOIL STOCKPILE RE-USE PROTOCOL

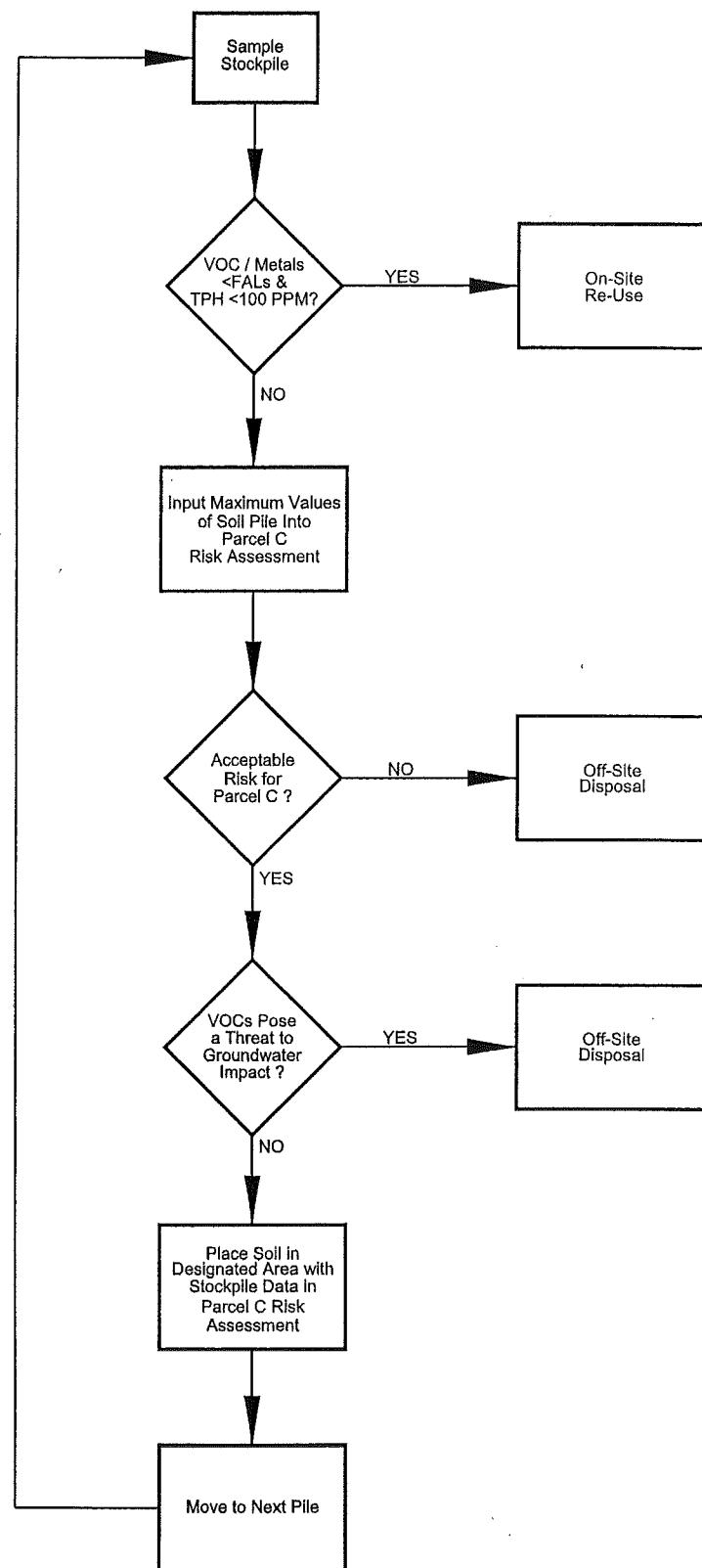


FIGURE 1



Appendix A

APPENDIX A
LABORATORY REPORTS

ANALYTICAL REPORT

BRC C-6, Torrance HaleyAldrich

Lot #: E2E010288

Scott Zachary

Haley & Aldrich Inc

SEVERN TRENT LABORATORIES, INC.

**Diane Suzuki
Project Manager**

May 9, 2002

EXECUTIVE SUMMARY - Detection Highlights

E2E010288

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
<u>2_VEW_16_5D050102_0001 05/01/02 09:00 001</u>				
Aluminum	6560	20.0	mg/kg	SW846 6010B
Arsenic	4.2	1.0	mg/kg	SW846 6010B
Barium	32.9	2.0	mg/kg	SW846 6010B
Chromium	12.7	1.0	mg/kg	SW846 6010B
Beryllium	0.23 B	0.50	mg/kg	SW846 6010B
Lead	2.2	0.50	mg/kg	SW846 6010B
Cobalt	4.1 B	5.0	mg/kg	SW846 6010B
Copper	6.3	2.5	mg/kg	SW846 6010B
Nickel	7.4	4.0	mg/kg	SW846 6010B
Thallium	0.91 B	1.0	mg/kg	SW846 6010B
Vanadium	19.5	5.0	mg/kg	SW846 6010B
Zinc	25.9	2.0	mg/kg	SW846 6010B
<u>2_VEW_17_5D050102_0001 05/01/02 11:30 002</u>				
Mercury	0.055 B	0.10	mg/kg	SW846 7471A
Aluminum	13600	20.0	mg/kg	SW846 6010B
Arsenic	7.1	1.0	mg/kg	SW846 6010B
Barium	74.8	2.0	mg/kg	SW846 6010B
Chromium	22.4	1.0	mg/kg	SW846 6010B
Beryllium	0.45 B	0.50	mg/kg	SW846 6010B
Lead	4.6	0.50	mg/kg	SW846 6010B
Cobalt	7.6	5.0	mg/kg	SW846 6010B
Copper	19.1	2.5	mg/kg	SW846 6010B
Molybdenum	0.42 B	4.0	mg/kg	SW846 6010B
Nickel	14.6	4.0	mg/kg	SW846 6010B
Thallium	1.0	1.0	mg/kg	SW846 6010B
Vanadium	36.7	5.0	mg/kg	SW846 6010B
Zinc	46.6	2.0	mg/kg	SW846 6010B

METHODS SUMMARY

E2E010288

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Extractable Petroleum Hydrocarbons	SW846 8015B	SANA AUTO-SHAKE
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3050B
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A	SW846 7471A
Polynuclear Aromatic Hydrocarbons by HPLC	SW846 8310	SW846 3550
Volatile Organics by GC/MS	SW846 8260B	SW846 5030
Volatile Petroleum Hydrocarbons	SW846 8015B	SW846 5030

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

E2E010288

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
E0QNX	001	2_VEW_16_5D050102_0001	05/01/02	09:00
E0QN7	002	2_VEW_17_5D050102_0001	05/01/02	11:30

NOTE (S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

HALEY & ALDRICH INC

Client Sample ID: 2_VEW_16_SD050102_0001

GC/MS Volatiles

Lot-Sample #....: E2E010288-001 Work Order #....: E0QNX1AD Matrix.....: SOLID
 Date Sampled....: 05/01/02 09:00 Date Received...: 05/01/02 18:00 MS Run #.....: 2128105
 Prep Date.....: 05/07/02 Analysis Date...: 05/07/02
 Prep Batch #....: 2128253 Analysis Time..: 15:52
 Dilution Factor: 1
 Analyst ID.....: 064667 Instrument ID..: MSD
 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	10	ug/kg	1.0
Chloromethane	ND	10	ug/kg	3.0
Vinyl chloride	ND	10	ug/kg	2.0
Bromomethane	ND	10	ug/kg	8.0
1,2-Dibromoethane	ND	5.0	ug/kg	3.0
Chloroethane	ND	10	ug/kg	2.0
Trichlorofluoromethane	ND	10	ug/kg	2.0
Acrolein	ND	100	ug/kg	30
1,1-Dichloroethene	ND	5.0	ug/kg	2.0
Iodomethane	ND	10	ug/kg	1.0
Acetone	ND	25	ug/kg	15
Carbon disulfide	ND	5.0	ug/kg	3.0
Methylene chloride	ND	5.0	ug/kg	3.0
trans-1,2-Dichloroethene	ND	5.0	ug/kg	2.0
Acrylonitrile	ND	100	ug/kg	30
Methyl tert-butyl ether	ND	5.0	ug/kg	1.0
1,1-Dichloroethane	ND	5.0	ug/kg	1.0
Vinyl acetate	ND	10	ug/kg	5.0
2,2-Dichloropropane	ND	5.0	ug/kg	2.0
cis-1,2-Dichloroethene	ND	5.0	ug/kg	2.0
2-Butanone	ND	25	ug/kg	15
Bromochloromethane	ND	5.0	ug/kg	1.0
Chloroform	ND	5.0	ug/kg	1.0
Tetrahydrofuran	ND	20	ug/kg	2.0
1,1,1-Trichloroethane	ND	5.0	ug/kg	1.0
1,1-Dichloropropene	ND	5.0	ug/kg	1.0
Carbon tetrachloride	ND	5.0	ug/kg	1.0
Benzene	ND	5.0	ug/kg	2.0
1,2-Dichloroethane	ND	5.0	ug/kg	1.0
Trichloroethene	ND	5.0	ug/kg	2.0
1,2-Dichloropropane	ND	5.0	ug/kg	1.0
Bromodichloromethane	ND	5.0	ug/kg	1.0
2-Chloroethyl vinyl ether	ND	10	ug/kg	5.0
cis-1,3-Dichloropropene	ND	5.0	ug/kg	1.0
4-Methyl-2-pentanone	ND	25	ug/kg	10
Toluene	ND	5.0	ug/kg	2.0
trans-1,3-Dichloropropene	ND	5.0	ug/kg	3.0

(Continued on next page)

HALEY & ALDRICH INC

Client Sample ID: 2_VEW_16_5D050102_0001

GC/MS Volatiles

Lot-Sample #....: E2E010288-001 Work Order #....: E0QNX1AD Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	REPORTING		
		<u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
1,1,2-Trichloroethane	ND	5.0	ug/kg	3.0
Tetrachloroethene	ND	5.0	ug/kg	2.0
2-Hexanone	ND	25	ug/kg	10
Dibromochloromethane	ND	5.0	ug/kg	1.0
Chlorobenzene	ND	5.0	ug/kg	2.0
Ethylbenzene	ND	5.0	ug/kg	2.0
Xylenes (total)	ND	5.0	ug/kg	3.0
Styrene	ND	10	ug/kg	2.0
Bromoform	ND	5.0	ug/kg	3.0
Isopropylbenzene	ND	5.0	ug/kg	2.0
p-Isopropyltoluene	ND	5.0	ug/kg	2.0
Bromobenzene	ND	5.0	ug/kg	2.0
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	3.0
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	3.0
1,2,3-Trichloropropane	ND	5.0	ug/kg	3.0
n-Propylbenzene	ND	5.0	ug/kg	2.0
2-Chlorotoluene	ND	5.0	ug/kg	2.0
4-Chlorotoluene	ND	5.0	ug/kg	2.0
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	2.0
tert-Butylbenzene	ND	5.0	ug/kg	2.0
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	2.0
sec-Butylbenzene	ND	5.0	ug/kg	2.0
1,3-Dichlorobenzene	ND	5.0	ug/kg	2.0
1,4-Dichlorobenzene	ND	5.0	ug/kg	2.0
1,2-Dichlorobenzene	ND	5.0	ug/kg	2.0
n-Butylbenzene	ND	5.0	ug/kg	2.0
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	3.0
1,2,4-Trichloro-benzene	ND	5.0	ug/kg	2.0
Hexachlorobutadiene	ND	5.0	ug/kg	2.0
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	2.0
t-Butanol	ND	100	ug/kg	50
Isopropyl ether	ND	10	ug/kg	1.0
Tert-amyl methyl ether	ND	10	ug/kg	2.0
Tert-butyl ethyl ether	ND	10	ug/kg	1.0
<u>SURROGATE</u>		<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	
Bromofluorobenzene	98		(65 - 135)	
1,2-Dichloroethane-d4	83		(60 - 140)	
Toluene-d8	105		(70 - 130)	

HALEY & ALDRICH INC

Client Sample ID: 2_VEW_16_5D050102_0001

GC Volatiles

Lot-Sample #....: E2E010288-001 Work Order #....: E0QNX1AC Matrix.....: SOLID
Date Sampled...: 05/01/02 09:00 Date Received...: 05/01/02 18:00 MS Run #.....: 2126262
Prep Date.....: 05/02/02 Analysis Date...: 05/02/02
Prep Batch #....: 2126474 Analysis Time...: 12:45
Dilution Factor: 1
Analyst ID.....: 001464 Instrument ID...: G15
Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
C6-C8	ND	1.0	mg/kg	0.10
SURROGATE	PERCENT	RECOVERY		
a,a,a-Trifluorotoluene (TFT)	RECOVERY	LIMITS		
	96	(60 - 130)		

HALEY & ALDRICH INC

Client Sample ID: 2_VEW_16_5D050102_0001

GC Semivolatiles

Lot-Sample #....: E2E010288-001 Work Order #....: E0QNX1AA Matrix.....: SOLID
 Date Sampled...: 05/01/02 09:00 Date Received...: 05/01/02 18:00 MS Run #.....: 2122137
 Prep Date.....: 05/02/02 Analysis Date...: 05/03/02
 Prep Batch #....: 2122297 Analysis Time...: 21:48
 Dilution Factor: 1
 Analyst ID.....: 356074 Instrument ID...: G03
 Method.....: SW846 8015B

<u>PARAMETER</u>	<u>RESULT</u>	REPORTING		
		<u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
C8-C9	ND	10	mg/kg	5.0
C10-C11	ND	10	mg/kg	5.0
C12-C13	ND	10	mg/kg	5.0
C14-C15	ND	10	mg/kg	5.0
C16-C17	ND	10	mg/kg	5.0
C18-C19	ND	10	mg/kg	5.0
C20-C23	ND	10	mg/kg	5.0
C24-C27	ND	10	mg/kg	5.0
C28-C31	ND	10	mg/kg	5.0
C32-C35	ND	10	mg/kg	5.0
C36-C39	ND	10	mg/kg	5.0
C40+	ND	10	mg/kg	5.0
Total Carbon Chain Range	ND	10	mg/kg	5.0
<u>SURROGATE</u>	<u>PERCENT</u>	RECOVERY		
		<u>RECOVERY</u>	<u>LIMITS</u>	
Benzo(a)pyrene	78	(60 - 130)		

HALEY & ALDRICH INC

Client Sample ID: 2_VEW_16_5D050102_0001

GC Semivolatiles

Lot-Sample #....: E2E010288-001 Work Order #....: E0QNX1AA Matrix.....: SOLID
 Date Sampled...: 05/01/02 09:00 Date Received...: 05/01/02 18:00 MS Run #.....: 2122137
 Prep Date.....: 05/02/02 Analysis Date...: 05/03/02
 Prep Batch #....: 2122297 Analysis Time...: 21:48
 Dilution Factor: 1
 Analyst ID.....: 356074 Instrument ID...: G03
 Method.....: SW846 8015B

<u>PARAMETER</u>	<u>RESULT</u>	REPORTING		
		<u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
C8-C9	ND	10	mg/kg	5.0
C10-C11	ND	10	mg/kg	5.0
C12-C13	ND	10	mg/kg	5.0
C14-C15	ND	10	mg/kg	5.0
C16-C17	ND	10	mg/kg	5.0
C18-C19	ND	10	mg/kg	5.0
C20-C23	ND	10	mg/kg	5.0
C24-C27	ND	10	mg/kg	5.0
C28-C31	ND	10	mg/kg	5.0
C32-C35	ND	10	mg/kg	5.0
C36-C39	ND	10	mg/kg	5.0
C40+	ND	10	mg/kg	5.0
Total Carbon Chain Range	ND	10	mg/kg	5.0
<u>SURROGATE</u>		<u>PERCENT</u>	RECOVERY	
Benzo(a)pyrene		78	<u>LIMITS</u> (60 ~ 130)	

HALEY & ALDRICH INC

Client Sample ID: 2_VIEW_16_5D050102_0001

GC Semivolatiles

Lot-Sample #....: E2E010288-001 Work Order #....: E0QNX1AA Matrix.....: SOLID
 Date Sampled....: 05/01/02 09:00 Date Received...: 05/01/02 18:00 MS Run #.....: 2122137
 Prep Date.....: 05/02/02 Analysis Date...: 05/03/02
 Prep Batch #....: 2122297 Analysis Time...: 21:48
 Dilution Factor: 1
 Analyst ID.....: 356074 Instrument ID...: G03
 Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
C8-C9	ND	10	mg/kg	5.0
C10-C11	ND	10	mg/kg	5.0
C12-C13	ND	10	mg/kg	5.0
C14-C15	ND	10	mg/kg	5.0
C16-C17	ND	10	mg/kg	5.0
C18-C19	ND	10	mg/kg	5.0
C20-C23	ND	10	mg/kg	5.0
C24-C27	ND	10	mg/kg	5.0
C28-C31	ND	10	mg/kg	5.0
C32-C35	ND	10	mg/kg	5.0
C36-C39	ND	10	mg/kg	5.0
C40+	ND	10	mg/kg	5.0
Total Carbon Chain Range	ND	10	mg/kg	5.0
SURROGATE	PERCENT	RECOVERY		
		RECOVERY	LIMITS	
Benzo(a)pyrene	78	(60 - 130)		

HALEY & ALDRICH INC

Client Sample ID: 2_VIEW_16_5D050102_0001

HPLC

Lot-Sample #....: E2E010288-001 Work Order #....: E0QNX1A1 Matrix.....: SOLID
 Date Sampled....: 05/01/02 09:00 Date Received...: 05/01/02 18:00 MS Run #.....: 2123171
 Prep Date.....: 05/03/02 Analysis Date...: 05/07/02
 Prep Batch #....: 2123425 Analysis Time...: 17:02
 Dilution Factor: 1
 Analyst ID.....: 033077 Instrument ID...: 3UV
 Method.....: SW846 8310

<u>PARAMETER</u>	<u>RESULT</u>	REPORTING		
		<u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Acenaphthene	ND	400	ug/kg	63
Acenaphthylene	ND	200	ug/kg	46
Anthracene	ND	8.0	ug/kg	1.1
Benzo(a)anthracene	ND	16	ug/kg	1.7
Benzo(a)pyrene	ND	10	ug/kg	3.1
Benzo(b)fluoranthene	ND	4.0	ug/kg	2.4
Benzo(ghi)perylene	ND	16	ug/kg	3.1
Benzo(k)fluoranthene	ND	4.0	ug/kg	1.1
Chrysene	ND	20	ug/kg	14
Dibenz(a, h)anthracene	ND	40	ug/kg	9.2
Fluoranthene	ND	20	ug/kg	4.8
Fluorene	ND	40	ug/kg	6.7
Indeno(1, 2, 3-cd)pyrene	ND	20	ug/kg	3.1
Naphthalene	ND	200	ug/kg	23
Phenanthrene	ND	16	ug/kg	2.6
Pyrene	ND	40	ug/kg	11
<u>SURROGATE</u>		PERCENT	RECOVERY	
1-Methylnaphthalene	69		LIMITS	
			(41 - 115)	

HALEY & ALDRICH INC

Client Sample ID: 2_VEW_16_5D050102_0001

TOTAL Metals

Lot-Sample #....:	E2E010288-001			Matrix.....:	SOLID
Date Sampled....:	05/01/02 09:00 Date Received...:			05/01/02 18:00	
PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE WORK ORDER #
Prep Batch #....:	2122204				
Aluminum	6560	20.0	mg/kg	SW846 6010B	05/02-05/03/02 E0QNX1AE
		Dilution Factor: 1		Analysis Time...: 13:46	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 8.0
Arsenic	4.2	1.0	mg/kg	SW846 6010B	05/02-05/03/02 E0QNX1AF
		Dilution Factor: 1		Analysis Time...: 13:46	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.40
Antimony	ND	6.0	mg/kg	SW846 6010B	05/02-05/03/02 E0QNX1AG
		Dilution Factor: 1		Analysis Time...: 13:46	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.60
Barium	32.9	2.0	mg/kg	SW846 6010B	05/02-05/03/02 E0QNX1AH
		Dilution Factor: 1		Analysis Time...: 13:46	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.10
Cadmium	ND	0.50	mg/kg	SW846 6010B	05/02-05/03/02 E0QNX1AJ
		Dilution Factor: 1		Analysis Time...: 13:46	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.060
Chromium	12.7	1.0	mg/kg	SW846 6010B	05/02-05/03/02 E0QNX1AK
		Dilution Factor: 1		Analysis Time...: 13:46	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.10
Beryllium	0.23 B	0.50	mg/kg	SW846 6010B	05/02-05/03/02 E0QNX1AL
		Dilution Factor: 1		Analysis Time...: 13:46	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.050
Lead	2.2	0.50	mg/kg	SW846 6010B	05/02-05/03/02 E0QNX1AM
		Dilution Factor: 1		Analysis Time...: 13:46	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.30
Selenium	ND	0.50	mg/kg	SW846 6010B	05/02-05/03/02 E0QNX1AN
		Dilution Factor: 1		Analysis Time...: 13:46	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.40

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HALEY & ALDRICH INC

Client Sample ID: 2_VEW_16_5D050102_0001

TOTAL Metals

Lot-Sample #....: E2E010288-001

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION-	WORK
		LIMIT	UNITS				
Silver	ND	1.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QNX1AP
		Dilution Factor: 1		Analysis Time...: 13:46		Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 2122173		MDL.....: 0.10	
Cobalt	4.1 B	5.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QNX1AQ
		Dilution Factor: 1		Analysis Time...: 13:46		Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 2122173		MDL.....: 0.10	
Copper	6.3	2.5	mg/kg		SW846 6010B	05/02-05/03/02	E0QNX1AR
		Dilution Factor: 1		Analysis Time...: 13:46		Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 2122173		MDL.....: 0.40	
Molybdenum	ND	4.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QNX1AT
		Dilution Factor: 1		Analysis Time...: 13:46		Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 2122173		MDL.....: 0.30	
Nickel	7.4	4.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QNX1AU
		Dilution Factor: 1		Analysis Time...: 13:46		Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 2122173		MDL.....: 0.30	
Thallium	0.91 B	1.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QNX1AV
		Dilution Factor: 1		Analysis Time...: 13:46		Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 2122173		MDL.....: 0.80	
Vanadium	19.5	5.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QNX1AW
		Dilution Factor: 1		Analysis Time...: 13:46		Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 2122173		MDL.....: 0.10	
Zinc	25.9	2.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QNX1AX
		Dilution Factor: 1		Analysis Time...: 13:46		Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 2122173		MDL.....: 1.0	
Prep Batch #....: 2122206							
Mercury	ND	0.10	mg/kg		SW846 7471A	05/02-05/03/02	E0QNX1A0
		Dilution Factor: 1		Analysis Time...: 13:34		Analyst ID.....: 000023	
		Instrument ID...: M04		MS Run #.....: 2122084		MDL.....: 0.020	

NOTE(S) :

B Estimated result. Result is less than RL.

HALEY & ALDRICH INC

Client Sample ID: 2_VEW_17_5D050102_0001

GC/MS Volatiles

Lot-Sample #....: E2E010288-002 Work Order #....: E0QN71AF Matrix.....: SOLID
 Date Sampled...: 05/01/02 11:30 Date Received...: 05/01/02 18:00 MS Run #.....: 2128105
 Prep Date.....: 05/03/02 Analysis Date...: 05/03/02
 Prep Batch #....: 2126574 Analysis Time...: 19:19
 Dilution Factor: 1
 Analyst ID.....: 064667 Instrument ID...: MSD
 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	10	ug/kg	1.0
Chloromethane	ND	10	ug/kg	3.0
Vinyl chloride	ND	10	ug/kg	2.0
Bromomethane	ND	10	ug/kg	8.0
1,2-Dibromoethane	ND	5.0	ug/kg	3.0
Chloroethane	ND	10	ug/kg	2.0
Trichlorofluoromethane	ND	10	ug/kg	2.0
Acrolein	ND	100	ug/kg	30
1,1-Dichloroethene	ND	5.0	ug/kg	2.0
Iodomethane	ND	10	ug/kg	10
Acetone	ND	25	ug/kg	15
Carbon disulfide	ND	5.0	ug/kg	3.0
Methylene chloride	ND	5.0	ug/kg	3.0
trans-1,2-Dichloroethene	ND	5.0	ug/kg	2.0
Acrylonitrile	ND	100	ug/kg	30
Methyl tert-butyl ether	ND	5.0	ug/kg	1.0
1,1-Dichloroethane	ND	5.0	ug/kg	1.0
Vinyl acetate	ND	10	ug/kg	5.0
2,2-Dichloropropane	ND	5.0	ug/kg	2.0
cis-1,2-Dichloroethene	ND	5.0	ug/kg	2.0
2-Butanone	ND	25	ug/kg	15
Bromochloromethane	ND	5.0	ug/kg	1.0
Chloroform	ND	5.0	ug/kg	1.0
Tetrahydrofuran	ND	20	ug/kg	2.0
1,1,1-Trichloroethane	ND	5.0	ug/kg	1.0
1,1-Dichloropropene	ND	5.0	ug/kg	1.0
Carbon tetrachloride	ND	5.0	ug/kg	1.0
Benzene	ND	5.0	ug/kg	2.0
1,2-Dichloroethane	ND	5.0	ug/kg	1.0
Trichloroethene	ND	5.0	ug/kg	2.0
1,2-Dichloropropane	ND	5.0	ug/kg	1.0
Bromodichloromethane	ND	5.0	ug/kg	1.0
2-Chloroethyl vinyl ether	ND	10	ug/kg	5.0
cis-1,3-Dichloropropene	ND	5.0	ug/kg	1.0
4-Methyl-2-pentanone	ND	25	ug/kg	10
Toluene	ND	5.0	ug/kg	2.0
trans-1,3-Dichloropropene	ND	5.0	ug/kg	3.0

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HALEY & ALDRICH INC

Client Sample ID: 2_VEW_17_5D050102_0001

GC/MS Volatiles

Lot-Sample #....: E2E010288-002 Work Order #....: E0QN71AF Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,1,2-Trichloroethane	ND	5.0	ug/kg	3.0
Tetrachloroethene	ND	5.0	ug/kg	2.0
2-Hexanone	ND	25	ug/kg	10
Dibromochloromethane	ND	5.0	ug/kg	1.0
Chlorobenzene	ND	5.0	ug/kg	2.0
Ethylbenzene	ND	5.0	ug/kg	2.0
Xylenes (total)	ND	5.0	ug/kg	3.0
Styrene	ND	10	ug/kg	2.0
Bromoform	ND	5.0	ug/kg	3.0
Isopropylbenzene	ND	5.0	ug/kg	2.0
p-Isopropyltoluene	ND	5.0	ug/kg	2.0
Bromobenzene	ND	5.0	ug/kg	2.0
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	3.0
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	3.0
1,2,3-Trichloropropane	ND	5.0	ug/kg	3.0
n-Propylbenzene	ND	5.0	ug/kg	2.0
2-Chlorotoluene	ND	5.0	ug/kg	2.0
4-Chlorotoluene	ND	5.0	ug/kg	2.0
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	2.0
tert-Butylbenzene	ND	5.0	ug/kg	2.0
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	2.0
sec-Butylbenzene	ND	5.0	ug/kg	2.0
1,3-Dichlorobenzene	ND	5.0	ug/kg	2.0
1,4-Dichlorobenzene	ND	5.0	ug/kg	2.0
1,2-Dichlorobenzene	ND	5.0	ug/kg	2.0
n-Butylbenzene	ND	5.0	ug/kg	2.0
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	3.0
1,2,4-Trichloro-benzene	ND	5.0	ug/kg	2.0
Hexachlorobutadiene	ND	5.0	ug/kg	2.0
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	2.0
t-Butanol	ND	100	ug/kg	50
Isopropyl ether	ND	10	ug/kg	1.0
Tert-amyl methyl ether	ND	10	ug/kg	2.0
Tert-butyl ethyl ether	ND	10	ug/kg	1.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	106	(65 - 135)
1,2-Dichloroethane-d4	99	(60 - 140)
Toluene-d8	116	(70 - 130)

HALEY & ALDRICH INC

Client Sample ID: 2_VEW_17_5D050102_0001

GC Volatiles

Lot-Sample #....: E2E010288-002 Work Order #....: E0QN71AE Matrix.....: SOLID
Date Sampled...: 05/01/02 11:30 Date Received...: 05/01/02 18:00 MS Run #.....: 2126262
Prep Date.....: 05/02/02 Analysis Date...: 05/02/02
Prep Batch #....: 2126474 Analysis Time...: 13:12
Dilution Factor: 1
Analyst ID.....: 001464 Instrument ID...: G15
Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
C6-C8	ND	1.0	mg/kg	0.10
<u>SURROGATE</u>		PERCENT	RECOVERY	
a,a,a-Trifluorotoluene (TFT)	91	RECOVERY	LIMITS	
		(60 - 130)		

HALEY & ALDRICH INC

Client Sample ID: 2_VEW_17_5D050102_0001

GC Semivolatiles

Lot-Sample #....: E2E010288-002 Work Order #....: E0QN71AD Matrix.....: SOLID
 Date Sampled...: 05/01/02 11:30 Date Received...: 05/01/02 18:00 MS Run #.....: 2122137
 Prep Date.....: 05/02/02 Analysis Date...: 05/03/02
 Prep Batch #....: 2122297 Analysis Time...: 23:43
 Dilution Factor: 1
 Analyst ID.....: 356074 Instrument ID...: G03
 Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
C8-C9	ND	10	mg/kg	5.0
C10-C11	ND	10	mg/kg	5.0
C12-C13	ND	10	mg/kg	5.0
C14-C15	ND	10	mg/kg	5.0
C16-C17	ND	10	mg/kg	5.0
C18-C19	ND	10	mg/kg	5.0
C20-C23	ND	10	mg/kg	5.0
C24-C27	ND	10	mg/kg	5.0
C28-C31	ND	10	mg/kg	5.0
C32-C35	ND	10	mg/kg	5.0
C36-C39	ND	10	mg/kg	5.0
C40+	ND	10	mg/kg	5.0
Total Carbon Chain Range	ND	10	mg/kg	5.0
<u>SURROGATE</u>		PERCENT	RECOVERY	
Benzo(a)pyrene		RECOVERY	LIMITS	
		81	(60 - 130)	

HALEY & ALDRICH INC

Client Sample ID: 2_VIEW_17_5D050102_0001

HPLC

Lot-Sample #....: E2E010288-002 Work Order #....: E0QN71AC Matrix.....: SOLID
 Date Sampled....: 05/01/02 11:30 Date Received...: 05/01/02 18:00 MS Run #.....: 2123171
 Prep Date.....: 05/03/02 Analysis Date...: 05/07/02
 Prep Batch #....: 2123425 Analysis Time...: 18:54
 Dilution Factor: 1
 Analyst ID.....: 033077 Instrument ID...: 3UV
 Method.....: SW846 8310

<u>PARAMETER</u>	<u>RESULT</u>	REPORTING		
		<u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Acenaphthene	ND	400	ug/kg	63
Acenaphthylene	ND	200	ug/kg	46
Anthracene	ND	8.0	ug/kg	1.1
Benzo(a)anthracene	ND	16	ug/kg	1.7
Benzo(a)pyrene	ND	10	ug/kg	3.1
Benzo(b)fluoranthene	ND	4.0	ug/kg	2.4
Benzo(ghi)perylene	ND	16	ug/kg	3.1
Benzo(k)fluoranthene	ND	4.0	ug/kg	1.1
Chrysene	ND	20	ug/kg	14
Dibenz(a,h)anthracene	ND	40	ug/kg	9.2
Fluoranthene	ND	20	ug/kg	4.8
Fluorene	ND	40	ug/kg	6.7
Indeno(1,2,3-cd)pyrene	ND	20	ug/kg	3.1
Naphthalene	ND	200	ug/kg	23
Phenanthrene	ND	16	ug/kg	2.6
Pyrene	ND	40	ug/kg	11
<u>SURROGATE</u>		<u>PERCENT</u>	<u>RECOVERY</u>	
1-Methylnaphthalene		RECOVERY	LIMITS	
		67	(41 - 115)	

HALEY & ALDRICH INC

Client Sample ID: 2_VEW_17_5D050102_0001

TOTAL Metals

Lot-Sample #....:	E2E010288-002			Matrix.....:	SOLID
Date Sampled...:	05/01/02 11:30 Date Received...:			05/01/02 18:00	
PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE WORK ORDER #
Prep Batch #....: 2122204					
Aluminum	13600	20.0	mg/kg	SW846 6010B	05/02-05/03/02 E0QN71AG
		Dilution Factor: 1		Analysis Time...: 14:18	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 8.0
Arsenic	7.1	1.0	mg/kg	SW846 6010B	05/02-05/03/02 E0QN71AH
		Dilution Factor: 1		Analysis Time...: 14:18	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.40
Antimony	ND	6.0	mg/kg	SW846 6010B	05/02-05/03/02 E0QN71AJ
		Dilution Factor: 1		Analysis Time...: 14:18	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.60
Barium	74.8	2.0	mg/kg	SW846 6010B	05/02-05/03/02 E0QN71AK
		Dilution Factor: 1		Analysis Time...: 14:18	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.10
Cadmium	ND	0.50	mg/kg	SW846 6010B	05/02-05/03/02 E0QN71AL
		Dilution Factor: 1		Analysis Time...: 14:18	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.060
Chromium	22.4	1.0	mg/kg	SW846 6010B	05/02-05/03/02 E0QN71AM
		Dilution Factor: 1		Analysis Time...: 14:18	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.10
Beryllium	0.45 B	0.50	mg/kg	SW846 6010B	05/02-05/03/02 E0QN71AN
		Dilution Factor: 1		Analysis Time...: 14:18	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.050
Lead	4.6	0.50	mg/kg	SW846 6010B	05/02-05/03/02 E0QN71AP
		Dilution Factor: 1		Analysis Time...: 14:18	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.30
Selenium	ND	0.50	mg/kg	SW846 6010B	05/02-05/03/02 E0QN71AQ
		Dilution Factor: 1		Analysis Time...: 14:18	Analyst ID.....: 021088
		Instrument ID...: M01		MS Run #.....: 2122173	MDL.....: 0.40

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HALEY & ALDRICH INC

Client Sample ID: 2_VEW_17_5D050102_0001

TOTAL Metals

Lot-Sample #....: E2E010288-002

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION-	WORK
		LIMIT	UNITS			ANALYSIS DATE	ORDER #
Silver	ND	1.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QN71AR
		Dilution Factor: 1			Analysis Time...: 14:18	Analyst ID.....: 021088	
		Instrument ID...: M01			MS Run #.....: 2122173	MDL.....: 0.10	
Cobalt	7.6	5.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QN71AT
		Dilution Factor: 1			Analysis Time...: 14:18	Analyst ID.....: 021088	
		Instrument ID...: M01			MS Run #.....: 2122173	MDL.....: 0.10	
Copper	19.1	2.5	mg/kg		SW846 6010B	05/02-05/03/02	E0QN71AU
		Dilution Factor: 1			Analysis Time...: 14:18	Analyst ID.....: 021088	
		Instrument ID...: M01			MS Run #.....: 2122173	MDL.....: 0.40	
Molybdenum	0.42 B	4.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QN71AV
		Dilution Factor: 1			Analysis Time...: 14:18	Analyst ID.....: 021088	
		Instrument ID...: M01			MS Run #.....: 2122173	MDL.....: 0.30	
Nickel	14.6	4.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QN71AW
		Dilution Factor: 1			Analysis Time...: 14:18	Analyst ID.....: 021088	
		Instrument ID...: M01			MS Run #.....: 2122173	MDL.....: 0.30	
Thallium	1.0	1.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QN71AX
		Dilution Factor: 1			Analysis Time...: 14:18	Analyst ID.....: 021088	
		Instrument ID...: M01			MS Run #.....: 2122173	MDL.....: 0.80	
Vanadium	36.7	5.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QN71AO
		Dilution Factor: 1			Analysis Time...: 14:18	Analyst ID.....: 021088	
		Instrument ID...: M01			MS Run #.....: 2122173	MDL.....: 0.10	
Zinc	46.6	2.0	mg/kg		SW846 6010B	05/02-05/03/02	E0QN71A1
		Dilution Factor: 1			Analysis Time...: 14:18	Analyst ID.....: 021088	
		Instrument ID...: M01			MS Run #.....: 2122173	MDL.....: 1.0	
Prep Batch #....:	2122206						
Mercury	0.055 B	0.10	mg/kg		SW846 7471A	05/02-05/03/02	E0QN71AA
		Dilution Factor: 1			Analysis Time...: 13:39	Analyst ID.....: 000023	
		Instrument ID...: M04			MS Run #.....: 2122084	MDL.....: 0.020	

NOTE(S) :

B Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

E2E010288

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 8015B		2122297	2122137
	SOLID	SW846 8015B		2126474	2126262
	SOLID	SW846 7471A		2122206	2122084
	SOLID	SW846 8260B		2128253	2128105
	SOLID	SW846 6010B		2122204	2122173
	SOLID	SW846 8310		2123425	2123171
002	SOLID	SW846 8015B		2122297	2122137
	SOLID	SW846 8015B		2126474	2126262
	SOLID	SW846 7471A		2122206	2122084
	SOLID	SW846 8260B		2126574	2128105
	SOLID	SW846 6010B		2122204	2122173
	SOLID	SW846 8310		2123425	2123171

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #....: E2E010288 Work Order #....: E034V1AA Matrix.....: SOLID
 MB Lot-Sample #: E2E060000-574
 Analysis Date...: 05/03/02 Prep Date.....: 05/03/02 Analysis Time..: 12:14
 Dilution Factor: 1 Prep Batch #....: 2126574 Instrument ID..: MSD
 Analyst ID.....: 064667

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260B
Chloromethane	ND	10	ug/kg	SW846 8260B
Vinyl chloride	ND	10	ug/kg	SW846 8260B
Bromomethane	ND	10	ug/kg	SW846 8260B
1,2-Dibromoethane	ND	5.0	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260B
Acrolein	ND	100	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
Iodomethane	ND	10	ug/kg	SW846 8260B
Acetone	ND	25	ug/kg	SW846 8260B
Carbon disulfide	ND	5.0	ug/kg	SW846 8260B
Methylene chloride	ND	5.0	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
Acrylonitrile	ND	100	ug/kg	SW846 8260B
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
Vinyl acetate	ND	10	ug/kg	SW846 8260B
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
2-Butanone	ND	25	ug/kg	SW846 8260B
Bromochloromethane	ND	5.0	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
Tetrahydrofuran	ND	20	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	25	ug/kg	SW846 8260B
Toluene	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
2-Hexanone	ND	25	ug/kg	SW846 8260B

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #....: E2E010288

Work Order #....: E034V1AA

Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	REPORTING		
		<u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Ethylbenzene	ND	5.0	ug/kg	SW846 8260B
Xylenes (total)	ND	5.0	ug/kg	SW846 8260B
Styrene	ND	10	ug/kg	SW846 8260B
Bromoform	ND	5.0	ug/kg	SW846 8260B
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260B
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260B
Bromobenzene	ND	5.0	ug/kg	SW846 8260B
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260B
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260B
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260B
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260B
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260B
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260B
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260B
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260B
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260B
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260B
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260B
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260B
1,2,4-Trichloro-benzene	ND	5.0	ug/kg	SW846 8260B
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260B
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260B
t-Butanol	ND	100	ug/kg	SW846 8260B
Isopropyl ether	ND	10	ug/kg	SW846 8260B
Tert-amyl methyl ether	ND	10	ug/kg	SW846 8260B
Tert-butyl ethyl ether	ND	10	ug/kg	SW846 8260B
<u>SURROGATE</u>		<u>PERCENT</u>	<u>RECOVERY</u>	
		<u>RECOVERY</u>	<u>LIMITS</u>	
Bromofluorobenzene		100	(65 - 135)	
1,2-Dichloroethane-d4		98	(60 - 140)	
Toluene-d8		107	(70 - 130)	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E2E010288 Work Order #...: E034K1AA Matrix.....: SOLID
 MB Lot-Sample #: E2E080000-253
 Analysis Date..: 05/07/02 Prep Date.....: 05/07/02 Analysis Time.: 14:49
 Dilution Factor: 1 Prep Batch #: 2128253 Instrument ID..: MSD
 Analyst ID.....: 064667

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260B
Chloromethane	ND	10	ug/kg	SW846 8260B
Vinyl chloride	ND	10	ug/kg	SW846 8260B
Bromomethane	ND	10	ug/kg	SW846 8260B
1,2-Dibromoethane	ND	5.0	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260B
Acrolein	ND	100	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
Iodomethane	ND	10	ug/kg	SW846 8260B
Acetone	ND	25	ug/kg	SW846 8260B
Carbon disulfide	ND	5.0	ug/kg	SW846 8260B
Methylene chloride	ND	5.0	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
Acrylonitrile	ND	100	ug/kg	SW846 8260B
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
Vinyl acetate	ND	10	ug/kg	SW846 8260B
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
2-Butanone	ND	25	ug/kg	SW846 8260B
Bromochloromethane	ND	5.0	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
Tetrahydrofuran	ND	20	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	25	ug/kg	SW846 8260B
Toluene	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
2-Hexanone	ND	25	ug/kg	SW846 8260B

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #....: E2E010288

Work Order #....: E034K1AA

Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Ethylbenzene	ND	5.0	ug/kg	SW846 8260B
Xylenes (total)	ND	5.0	ug/kg	SW846 8260B
Styrene	ND	10	ug/kg	SW846 8260B
Bromoform	ND	5.0	ug/kg	SW846 8260B
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260B
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260B
Bromobenzene	ND	5.0	ug/kg	SW846 8260B
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260B
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260B
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260B
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260B
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260B
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260B
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260B
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260B
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260B
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260B
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260B
1,2-Dibromo-3-chloro- propane	ND	10	ug/kg	SW846 8260B
1,2,4-Trichloro- benzene	ND	5.0	ug/kg	SW846 8260B
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260B
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260B
t-Butanol	ND	100	ug/kg	SW846 8260B
Isopropyl ether	ND	10	ug/kg	SW846 8260B
Tert-amyl methyl ether	ND	10	ug/kg	SW846 8260B
Tert-butyl ethyl ether	ND	10	ug/kg	SW846 8260B
 <u>SURROGATE</u>				
	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>		
Bromofluorobenzene	87	(65 - 135)		
1,2-Dichloroethane-d4	93	(60 - 140)		
Toluene-d8	92	(70 - 130)		

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E2E010288
MB Lot-Sample #: E2E060000-474

Work Order #...: E01EF1AA

Matrix.....: SOLID

Analysis Date..: 05/02/02
Dilution Factor: 1

Prep Date.....: 05/02/02
Prep Batch #: 2126474

Analysis Time..: 11:51
Instrument ID..: G15

Analyst ID.....: 001464

PARAMETER	REPORTING			METHOD
	RESULT	LIMIT	UNITS	
C6-C8	ND	1.0	mg/kg	SW846 8015B
SURROGATE	PERCENT RECOVERY			LIMITS
	94	(60 - 130)		

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #....: E2E010288
MB Lot-Sample #: E2E020000-297
Analysis Date...: 05/03/02
Dilution Factor: 1

Work Order #....: E0RQ21AA
Prep Date.....: 05/02/02
Prep Batch #....: 2122297
Analyst ID.....: 356074

Matrix.....: SOLID
Analysis Time..: 20:31
Instrument ID..: G03

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
C8-C9	ND	10	mg/kg	SW846 8015B
C10-C11	ND	10	mg/kg	SW846 8015B
C12-C13	ND	10	mg/kg	SW846 8015B
C14-C15	ND	10	mg/kg	SW846 8015B
C16-C17	ND	10	mg/kg	SW846 8015B
C18-C19	ND	10	mg/kg	SW846 8015B
C20-C23	ND	10	mg/kg	SW846 8015B
C24-C27	ND	10	mg/kg	SW846 8015B
C28-C31	ND	10	mg/kg	SW846 8015B
C32-C35	ND	10	mg/kg	SW846 8015B
C36-C39	ND	10	mg/kg	SW846 8015B
C40+	ND	10	mg/kg	SW846 8015B
Total Carbon Chain Range	ND	10	mg/kg	SW846 8015B
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
	92	(60 - 130)		

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

HPLC

Client Lot #...: E2E010288 Work Order #...: E0W8J1AA Matrix.....: SOLID
MB Lot-Sample #: G2E030000-425

Analysis Date..: 05/07/02 Prep Date.....: 05/03/02 Analysis Time..: 15:47
Dilution Factor: 1 Prep Batch #...: 2123425 Instrument ID..: 3UV

Analyst ID.....: 033077

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Acenaphthene	ND	400	ug/kg	SW846 8310
Acenaphthylene	ND	200	ug/kg	SW846 8310
Anthracene	ND	8.0	ug/kg	SW846 8310
Benzo (a) anthracene	ND	16	ug/kg	SW846 8310
Benzo (a) pyrene	ND	10	ug/kg	SW846 8310
Benzo (b) fluoranthene	ND	4.0	ug/kg	SW846 8310
Benzo (ghi) perylene	ND	16	ug/kg	SW846 8310
Benzo (k) fluoranthene	ND	4.0	ug/kg	SW846 8310
Chrysene	ND	20	ug/kg	SW846 8310
Dibenz (a, h) anthracene	ND	40	ug/kg	SW846 8310
Fluoranthene	ND	20	ug/kg	SW846 8310
Fluorene	ND	40	ug/kg	SW846 8310
Indeno(1, 2, 3-cd)pyrene	ND	20	ug/kg	SW846 8310
Naphthalene	ND	200	ug/kg	SW846 8310
Phenanthrene	ND	16	ug/kg	SW846 8310
Pyrene	ND	40	ug/kg	SW846 8310
SURROGATE	PERCENT RECOVERY	RECOVERY		
		LIMITS	(41 - 115)	
1-Methylnaphthalene	58			

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: E2E010288

Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
MB Lot-Sample #: E2E020000-204 Prep Batch #...: 2122204						
Aluminum	ND	20.0	mg/kg	SW846 6010B	05/02-05/03/02	E0Q4N1AC
		Dilution Factor: 1				
		Analysis Time...: 12:22		Analyst ID.....: 021088	Instrument ID...: M01	
Arsenic	ND	1.0	mg/kg	SW846 6010B	05/02-05/03/02	E0Q4N1AD
		Dilution Factor: 1				
		Analysis Time...: 12:22		Analyst ID.....: 021088	Instrument ID...: M01	
Antimony	ND	6.0	mg/kg	SW846 6010B	05/02-05/03/02	E0Q4N1A0
		Dilution Factor: 1				
		Analysis Time...: 12:22		Analyst ID.....: 021088	Instrument ID...: M01	
Barium	ND	2.0	mg/kg	SW846 6010B	05/02-05/03/02	E0Q4N1AE
		Dilution Factor: 1				
		Analysis Time...: 12:22		Analyst ID.....: 021088	Instrument ID...: M01	
Cadmium	ND	0.50	mg/kg	SW846 6010B	05/02-05/03/02	E0Q4N1AJ
		Dilution Factor: 1				
		Analysis Time...: 12:22		Analyst ID.....: 021088	Instrument ID...: M01	
Chromium	ND	1.0	mg/kg	SW846 6010B	05/02-05/03/02	E0Q4N1AL
		Dilution Factor: 1				
		Analysis Time...: 12:22		Analyst ID.....: 021088	Instrument ID...: M01	
Beryllium	ND	0.50	mg/kg	SW846 6010B	05/02-05/03/02	E0Q4N1AF
		Dilution Factor: 1				
		Analysis Time...: 12:22		Analyst ID.....: 021088	Instrument ID...: M01	
Lead	ND	0.50	mg/kg	SW846 6010B	05/02-05/03/02	E0Q4N1AX
		Dilution Factor: 1				
		Analysis Time...: 12:22		Analyst ID.....: 021088	Instrument ID...: M01	
Selenium	ND	0.50	mg/kg	SW846 6010B	05/02-05/03/02	E0Q4N1A1
		Dilution Factor: 1				
		Analysis Time...: 12:22		Analyst ID.....: 021088	Instrument ID...: M01	
Silver	ND	1.0	mg/kg	SW846 6010B	05/02-05/03/02	E0Q4N1AA
		Dilution Factor: 1				
		Analysis Time...: 12:22		Analyst ID.....: 021088	Instrument ID...: M01	
Cobalt	ND	5.0	mg/kg	SW846 6010B	05/02-05/03/02	E0Q4N1AK
		Dilution Factor: 1				
		Analysis Time...: 12:22		Analyst ID.....: 021088	Instrument ID...: M01	

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #....: E2E010288

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION-	WORK
		LIMIT	UNITS				
Copper	ND	2.5	mg/kg		SW846 6010B	05/02-05/03/02	E0Q4N1AM
		Dilution Factor: 1					
		Analysis Time...: 12:22			Analyst ID.....: 021088		Instrument ID..: M01
Molybdenum	ND	4.0	mg/kg		SW846 6010B	05/02-05/03/02	E0Q4N1AU
		Dilution Factor: 1					
		Analysis Time...: 12:22			Analyst ID.....: 021088		Instrument ID..: M01
Nickel	ND	4.0	mg/kg		SW846 6010B	05/02-05/03/02	E0Q4N1AW
		Dilution Factor: 1					
		Analysis Time...: 12:22			Analyst ID.....: 021088		Instrument ID..: M01
Thallium	ND	1.0	mg/kg		SW846 6010B	05/02-05/03/02	E0Q4N1A5
		Dilution Factor: 1					
		Analysis Time...: 12:22			Analyst ID.....: 021088		Instrument ID..: M01
Vanadium	ND	5.0	mg/kg		SW846 6010B	05/02-05/03/02	E0Q4N1A6
		Dilution Factor: 1					
		Analysis Time...: 12:22			Analyst ID.....: 021088		Instrument ID..: M01
Zinc	ND	2.0	mg/kg		SW846 6010B	05/02-05/03/02	E0Q4N1A7
		Dilution Factor: 1					
		Analysis Time...: 12:22			Analyst ID.....: 021088		Instrument ID..: M01

MB Lot-Sample #: E2E020000-206 Prep Batch #....: 2122206

Mercury	ND	0.10	mg/kg	SW846 7471A	05/02-05/03/02	E0Q441AA
		Dilution Factor: 1				
		Analysis Time...: 13:30		Analyst ID.....: 000023		Instrument ID..: M04

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: E2E010288 Work Order #...: E034V1AC Matrix.....: SOLID
LCS Lot-Sample#: E2E060000-574
Prep Date.....: 05/03/02 Analysis Date...: 05/03/02
Prep Batch #...: 2126574 Analysis Time...: 12:45
Dilution Factor: 1 Instrument ID..: MSD
Analyst ID.....: 064667

<u>PARAMETER</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>METHOD</u>
	<u>RECOVERY</u>	<u>LIMITS</u>	
1,1-Dichloroethene	135	(65 - 150)	SW846 8260B
Benzene	121	(70 - 130)	SW846 8260B
Trichloroethene	123	(70 - 135)	SW846 8260B
Toluene	116	(70 - 130)	SW846 8260B
Chlorobenzene	113	(70 - 130)	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	106	(65 - 135)
1,2-Dichloroethane-d4	110	(60 - 140)
Toluene-d8	110	(70 - 130)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #....: E2E010288 Work Order #....: E034V1AC Matrix.....: SOLID
 LCS Lot-Sample#: E2E060000-574
 Prep Date.....: 05/03/02 Analysis Date...: 05/03/02
 Prep Batch #....: 2126574 Analysis Time...: 12:45
 Dilution Factor: 1 Instrument ID...: MSD
 Analyst ID.....: 064667

<u>PARAMETER</u>	SPIKE <u>AMOUNT</u>	MEASURED <u>AMOUNT</u>	UNITS	PERCENT <u>RECOVERY</u>	METHOD
1,1-Dichloroethene	50.0	67.6	ug/kg	135	SW846 8260B
Benzene	50.0	60.3	ug/kg	121	SW846 8260B
Trichloroethene	50.0	61.7	ug/kg	123	SW846 8260B
Toluene	50.0	58.1	ug/kg	116	SW846 8260B
Chlorobenzene	50.0	56.7	ug/kg	113	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Bromofluorobenzene	106	(65 - 135)
1,2-Dichloroethane-d4	110	(60 - 140)
Toluene-d8	110	(70 - 130)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: E2E010288 Work Order #....: E034K1AC Matrix.....: SOLID
LCS Lot-Sample#: E2E080000-253
Prep Date.....: 05/07/02 Analysis Date...: 05/07/02
Prep Batch #....: 2128253 Analysis Time...: 12:33
Dilution Factor: 1 Instrument ID...: MSD
Analyst ID.....: 064667

PARAMETER	PERCENT	RECOVERY	METHOD
	RECOVERY	LIMITS	
1,1-Dichloroethene	138	(65 - 150)	SW846 8260B
Benzene	119	(70 - 130)	SW846 8260B
Trichloroethene	133	(70 - 135)	SW846 8260B
Toluene	124	(70 - 130)	SW846 8260B
Chlorobenzene	118	(70 - 130)	SW846 8260B

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Bromofluorobenzene	71	(65 - 135)
1,2-Dichloroethane-d4	64	(60 - 140)
Toluene-d8	73	(70 - 130)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #....: E2E010288 Work Order #....: E034K1AC Matrix.....: SOLID
 LCS Lot-Sample#: E2E080000-253
 Prep Date.....: 05/07/02 Analysis Date...: 05/07/02
 Prep Batch #....: 2128253 Analysis Time...: 12:33
 Dilution Factor: 1 Instrument ID...: MSD
 Analyst ID.....: 064667

<u>PARAMETER</u>	<u>SPIKE</u>	<u>MEASURED</u>	<u>UNITS</u>	<u>PERCENT</u>	<u>METHOD</u>
	<u>AMOUNT</u>	<u>AMOUNT</u>		<u>RECOVERY</u>	
1,1-Dichloroethene	50.0	69.1	ug/kg	138	SW846 8260B
Benzene	50.0	59.5	ug/kg	119	SW846 8260B
Trichloroethene	50.0	66.5	ug/kg	133	SW846 8260B
Toluene	50.0	62.0	ug/kg	124	SW846 8260B
Chlorobenzene	50.0	58.9	ug/kg	118	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	71	(65 - 135)
1,2-Dichloroethane-d4	64	(60 - 140)
Toluene-d8	73	(70 - 130)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #....: E2E010288 Work Order #....: E01EF1AC Matrix.....: SOLID
LCS Lot-Sample#: E2E060000-474
Prep Date.....: 05/02/02 Analysis Date...: 05/02/02
Prep Batch #....: 2126474 Analysis Time...: 12:18
Dilution Factor: 1 Instrument ID...: G15
Analyst ID.....: 001464

PARAMETER	PERCENT	RECOVERY	METHOD
	RECOVERY	LIMITS	
TPH (as Gasoline)	96	(70 - 140)	SW846 8015B
SURROGATE	PERCENT	RECOVERY	
a,a,a-Trifluorotoluene (TFT)	RECOVERY	LIMITS	
	105	(60 - 130)	

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #....: E2E010288 Work Order #....: E01EF1AC Matrix.....: SOLID
LCS Lot-Sample#: E2E060000-474
Prep Date.....: 05/02/02 Analysis Date...: 05/02/02
Prep Batch #....: 2126474 Analysis Time...: 12:18
Dilution Factor: 1 Instrument ID...: G15
Analyst ID.....: 001464

<u>PARAMETER</u>	<u>SPIKE</u>	<u>MEASURED</u>	<u>PERCENT</u>	
	<u>AMOUNT</u>	<u>AMOUNT</u>	<u>UNITS</u>	<u>RECOVERY</u>
TPH (as Gasoline)	5.00	4.80	mg/kg	96
<u>SURROGATE</u>			<u>PERCENT</u>	<u>RECOVERY</u>
a,a,a-Trifluorotoluene (TFT)			<u>RECOVERY</u>	<u>LIMITS</u>
		105		(60 - 130)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #....: E2E010288 Work Order #....: E0RQ21AC Matrix.....: SOLID
LCS Lot-Sample#: E2E020000-297
Prep Date.....: 05/02/02 Analysis Date...: 05/03/02
Prep Batch #....: 2122297 Analysis Time...: 21:09
Dilution Factor: 1 Instrument ID...: G03
Analyst ID.....: 356074

<u>PARAMETER</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>	<u>METHOD</u>
TPH (as Diesel)	83	(55 - 130)	SW846 8015B
<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>	
Benzo(a)pyrene	92	(60 - 130)	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #....: E2E010288 Work Order #....: E0RQ21AC Matrix.....: SOLID
LCS Lot-Sample#: E2E020000-297
Prep Date.....: 05/02/02 Analysis Date...: 05/03/02
Prep Batch #:....: 2122297 Analysis Time...: 21:09
Dilution Factor: 1 Instrument ID...: G03
Analyst ID.....: 356074

PARAMETER	SPIKE <u>AMOUNT</u>	MEASURED <u>AMOUNT</u>	PERCENT <u>UNITS</u>	PERCENT <u>RECOVERY</u>	METHOD
TPH (as Diesel)	250	207	mg/kg	83	SW846 8015B
SURROGATE		PERCENT <u>RECOVERY</u>		RECOVERY <u>LIMITS</u>	
Benzo(a)pyrene		92		(60 - 130)	

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #....: E2E010288 Work Order #....: E0W8J1AC Matrix.....: SOLID
 LCS Lot-Sample#: G2E030000-425
 Prep Date.....: 05/03/02 Analysis Date...: 05/07/02
 Prep Batch #....: 2123425 Analysis Time...: 16:25
 Dilution Factor: 1 Instrument ID...: 3UV
 Analyst ID.....: 033077

<u>PARAMETER</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>METHOD</u>
	<u>RECOVERY</u>	<u>LIMITS</u>	
Acenaphthene	75	(50 - 150)	SW846 8310
Acenaphthylene	75	(50 - 150)	SW846 8310
Anthracene	69	(50 - 150)	SW846 8310
Benzo(a)anthracene	75	(50 - 150)	SW846 8310
Benzo(a)pyrene	69	(49 - 107)	SW846 8310
Benzo(b)fluoranthene	74	(50 - 150)	SW846 8310
Benzo(ghi)perylene	75	(50 - 150)	SW846 8310
Benzo(k)fluoranthene	70	(50 - 150)	SW846 8310
Chrysene	76	(50 - 150)	SW846 8310
Dibenz(a,h)anthracene	57	(50 - 150)	SW846 8310
Fluoranthene	76	(50 - 150)	SW846 8310
Fluorene	73	(43 - 112)	SW846 8310
Indeno(1,2,3-cd)pyrene	77	(54 - 114)	SW846 8310
Naphthalene	71	(44 - 110)	SW846 8310
Phenanthrene	75	(50 - 150)	SW846 8310
Pyrene	76	(49 - 115)	SW846 8310
<hr/>			
<u>SURROGATE</u>		<u>PERCENT</u>	<u>RECOVERY</u>
1-Methylnaphthalene		<u>RECOVERY</u>	<u>LIMITS</u>
		73	(41 - 115)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #....: E2E010288 Work Order #....: E0W8J1AC Matrix.....: SOLID
 LCS Lot-Sample#: G2E030000-425
 Prep Date.....: 05/03/02 Analysis Date...: 05/07/02
 Prep Batch #....: 2123425 Analysis Time...: 16:25
 Dilution Factor: 1 Instrument ID...: 3UV
 Analyst ID.....: 033077

<u>PARAMETER</u>	SPIKE <u>AMOUNT</u>	MEASURED <u>AMOUNT</u>	UNITS	PERCENT <u>RECOVERY</u>	METHOD
Acenaphthene	1330	992	ug/kg	75	SW846 8310
Acenaphthylene	667	503	ug/kg	75	SW846 8310
Anthracene	26.6	18.5	ug/kg	69	SW846 8310
Benzo(a)anthracene	66.7	49.8	ug/kg	75	SW846 8310
Benzo(a)pyrene	66.7	46.0	ug/kg	69	SW846 8310
Benzo(b)fluoranthene	26.6	19.8	ug/kg	74	SW846 8310
Benzo(ghi)perylene	106	79.8	ug/kg	75	SW846 8310
Benzo(k)fluoranthene	26.6	18.7	ug/kg	70	SW846 8310
Chrysene	66.7	50.5	ug/kg	76	SW846 8310
Dibenz(a,h)anthracene	266	152	ug/kg	57	SW846 8310
Fluoranthene	66.7	50.4	ug/kg	76	SW846 8310
Fluorene	133	97.0	ug/kg	73	SW846 8310
Indeno(1,2,3-cd)pyrene	66.7	51.4	ug/kg	77	SW846 8310
Naphthalene	667	472	ug/kg	71	SW846 8310
Phenanthrene	53.2	39.8	ug/kg	75	SW846 8310
Pyrene	133	101	ug/kg	76	SW846 8310
<u>SURROGATE</u>		PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>		
1-Methylnaphthalene		73	(41 - 115)		

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #....: E2E010288

Matrix.....: SOLID

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
LCS Lot-Sample#:	E2E020000-204	Prep Batch #....:	2122204		
Aluminum	97	(70 - 115)	SW846 6010B	05/02-05/03/02	E0Q4N1A9
		Dilution Factor: 1			
		Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID...: M01
Arsenic	106	(75 - 115)	SW846 6010B	05/02-05/03/02	E0Q4N1CA
		Dilution Factor: 1			
		Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID...: M01
Antimony	104	(75 - 115)	SW846 6010B	05/02-05/03/02	E0Q4N1CW
		Dilution Factor: 1			
		Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID...: M01
Barium	101	(80 - 120)	SW846 6010B	05/02-05/03/02	E0Q4N1CC
		Dilution Factor: 1			
		Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID...: M01
Cadmium	104	(80 - 120)	SW846 6010B	05/02-05/03/02	E0Q4N1CG
		Dilution Factor: 1			
		Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID...: M01
Chromium	104	(85 - 120)	SW846 6010B	05/02-05/03/02	E0Q4N1CJ
		Dilution Factor: 1			
		Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID...: M01
Beryllium	108	(80 - 120)	SW846 6010B	05/02-05/03/02	E0Q4N1CD
		Dilution Factor: 1			
		Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID...: M01
Lead	102	(80 - 120)	SW846 6010B	05/02-05/03/02	E0Q4N1CV
		Dilution Factor: 1			
		Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID...: M01
Selenium	100	(70 - 115)	SW846 6010B	05/02-05/03/02	E0Q4N1CX
		Dilution Factor: 1			
		Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID...: M01
Silver	103	(80 - 120)	SW846 6010B	05/02-05/03/02	E0Q4N1A8
		Dilution Factor: 1			
		Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID...: M01

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: E2E010288

Matrix.....: SOLID

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION-</u>	
		(80 - 120)	SW846 6010B	<u>ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Cobalt	103	(80 - 120)	SW846 6010B	05/02-05/03/02	E0Q4N1CH
		Dilution Factor: 1			
		Analysis Time...: 13:38	Analyst ID.....: 021088	Instrument ID...: M01	
Copper	103	(80 - 120)	SW846 6010B	05/02-05/03/02	E0Q4N1CK
		Dilution Factor: 1			
		Analysis Time...: 13:38	Analyst ID.....: 021088	Instrument ID...: M01	
Molybdenum	104	(80 - 120)	SW846 6010B	05/02-05/03/02	E0Q4N1CR
		Dilution Factor: 1			
		Analysis Time...: 13:38	Analyst ID.....: 021088	Instrument ID...: M01	
Nickel	103	(80 - 120)	SW846 6010B	05/02-05/03/02	E0Q4N1CU
		Dilution Factor: 1			
		Analysis Time...: 13:38	Analyst ID.....: 021088	Instrument ID...: M01	
Thallium	102	(75 - 125)	SW846 6010B	05/02-05/03/02	E0Q4N1C3
		Dilution Factor: 1			
		Analysis Time...: 13:38	Analyst ID.....: 021088	Instrument ID...: M01	
Vanadium	104	(80 - 120)	SW846 6010B	05/02-05/03/02	E0Q4N1C4
		Dilution Factor: 1			
		Analysis Time...: 13:38	Analyst ID.....: 021088	Instrument ID...: M01	
Zinc	108	(80 - 120)	SW846 6010B	05/02-05/03/02	E0Q4N1C5
		Dilution Factor: 1			
		Analysis Time...: 13:38	Analyst ID.....: 021088	Instrument ID...: M01	
LCS Lot-Sample#:	E2E020000-206	Prep Batch #...:	2122206		
Mercury	100	(85 - 115)	SW846 7471A	05/02-05/03/02	E0Q441AC
		Dilution Factor: 1			
		Analysis Time...: 13:32	Analyst ID.....: 000023	Instrument ID...: M04	

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: E2E010288

Matrix.....: SOLID

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
LCS Lot-Sample#: E2E020000-204 Prep Batch #...: 2122204							
Aluminum	200	195	mg/kg	97	SW846 6010B	05/02-05/03/02	E0Q4N1A9
			Dilution Factor:	1			
			Analysis Time..:	13:38	Analyst ID.....: 021088	Instrument ID..: M01	
Arsenic	200	211	mg/kg	106	SW846 6010B	05/02-05/03/02	E0Q4N1CA
			Dilution Factor:	1			
			Analysis Time..:	13:38	Analyst ID.....: 021088	Instrument ID..: M01	
Antimony	50.0	51.8	mg/kg	104	SW846 6010B	05/02-05/03/02	E0Q4N1CW
			Dilution Factor:	1			
			Analysis Time..:	13:38	Analyst ID.....: 021088	Instrument ID..: M01	
Barium	200	203	mg/kg	101	SW846 6010B	05/02-05/03/02	E0Q4N1CC
			Dilution Factor:	1			
			Analysis Time..:	13:38	Analyst ID.....: 021088	Instrument ID..: M01	
Cadmium	5.00	5.18	mg/kg	104	SW846 6010B	05/02-05/03/02	E0Q4N1CG
			Dilution Factor:	1			
			Analysis Time..:	13:38	Analyst ID.....: 021088	Instrument ID..: M01	
Chromium	20.0	20.8	mg/kg	104	SW846 6010B	05/02-05/03/02	E0Q4N1CJ
			Dilution Factor:	1			
			Analysis Time..:	13:38	Analyst ID.....: 021088	Instrument ID..: M01	
Beryllium	5.00	5.38	mg/kg	108	SW846 6010B	05/02-05/03/02	E0Q4N1CD
			Dilution Factor:	1			
			Analysis Time..:	13:38	Analyst ID.....: 021088	Instrument ID..: M01	
Lead	50.0	51.0	mg/kg	102	SW846 6010B	05/02-05/03/02	E0Q4N1CV
			Dilution Factor:	1			
			Analysis Time..:	13:38	Analyst ID.....: 021088	Instrument ID..: M01	
Selenium	200	199	mg/kg	100	SW846 6010B	05/02-05/03/02	E0Q4N1CX
			Dilution Factor:	1			
			Analysis Time..:	13:38	Analyst ID.....: 021088	Instrument ID..: M01	
Silver	5.00	5.14	mg/kg	103	SW846 6010B	05/02-05/03/02	E0Q4N1A8
			Dilution Factor:	1			
			Analysis Time..:	13:38	Analyst ID.....: 021088	Instrument ID..: M01	

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #....: E2E010288

Matrix.....: SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Cobalt	50.0	51.5	mg/kg	103	SW846 6010B	05/02-05/03/02	E0Q4N1CH
			Dilution Factor: 1				
			Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID..: M01	
Copper	25.0	25.6	mg/kg	103	SW846 6010B	05/02-05/03/02	E0Q4N1CK
			Dilution Factor: 1				
			Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID..: M01	
Molybdenum	100	104	mg/kg	104	SW846 6010B	05/02-05/03/02	E0Q4N1CR
			Dilution Factor: 1				
			Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID..: M01	
Nickel	50.0	51.7	mg/kg	103	SW846 6010B	05/02-05/03/02	E0Q4N1CU
			Dilution Factor: 1				
			Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID..: M01	
Thallium	200	204	mg/kg	102	SW846 6010B	05/02-05/03/02	E0Q4N1C3
			Dilution Factor: 1				
			Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID..: M01	
Vanadium	50.0	51.9	mg/kg	104	SW846 6010B	05/02-05/03/02	E0Q4N1C4
			Dilution Factor: 1				
			Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID..: M01	
Zinc	50.0	54.0	mg/kg	108	SW846 6010B	05/02-05/03/02	E0Q4N1C5
			Dilution Factor: 1				
			Analysis Time...: 13:38		Analyst ID.....: 021088	Instrument ID..: M01	
LCS Lot-Sample#:	E2E020000-206		Prep Batch #....:	2122206			
Mercury	0.833	0.832	mg/kg	100	SW846 7471A	05/02-05/03/02	E0Q441AC
			Dilution Factor: 1				
			Analysis Time...: 13:32		Analyst ID.....: 000023	Instrument ID..: M04	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: E2E010288 **Work Order #....:** E0QNX1DF-MS **Matrix.....:** SOLID
MS Lot-Sample #: E2E010288-001 **E0QNX1DG-MSD**
Date Sampled....: 05/01/02 09:00 **Date Received...:** 05/01/02 18:00 **MS Run #.....:** 2128105
Prep Date.....: 05/07/02 **Analysis Date...:** 05/07/02
Prep Batch #....: 2128253 **Analysis Time...:** 16:23
Dilution Factor: 1 **Analyst ID.....:** 064667 **Instrument ID...:** MSD

<u>PARAMETER</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>RPD</u>	<u>LIMITS</u>	<u>METHOD</u>
	<u>RECOVERY</u>	<u>LIMITS</u>			
1,1-Dichloroethene	112	(65 - 150)	6.0	(0-30)	SW846 8260B
	119	(65 - 150)			SW846 8260B
Benzene	107	(70 - 130)	1.5	(0-30)	SW846 8260B
	105	(70 - 130)			SW846 8260B
Trichloroethene	114	(70 - 135)	1.9	(0-30)	SW846 8260B
	116	(70 - 135)			SW846 8260B
Toluene	103	(70 - 130)	2.8	(0-30)	SW846 8260B
	106	(70 - 130)			SW846 8260B
Chlorobenzene	105	(70 - 130)	4.5	(0-30)	SW846 8260B
	100	(70 - 130)			SW846 8260B
<hr/>					
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>RPD</u>	<u>LIMITS</u>	<u>METHOD</u>
	<u>RECOVERY</u>	<u>LIMITS</u>			
Bromofluorobenzene	93	(65 - 135)	1.5	(60-140)	SW846 8260B
	95	(65 - 135)			SW846 8260B
1,2-Dichloroethane-d4	106	(60 - 140)	1.5	(70-130)	SW846 8260B
	87	(60 - 140)			SW846 8260B
Toluene-d8	95	(70 - 130)	1.5	(70-130)	SW846 8260B
	103	(70 - 130)			SW846 8260B

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #....: E2E010288 Work Order #....: E0QNX1DF-MS Matrix.....: SOLID
 MS Lot-Sample #: E2E010288-001 E0QNX1DG-MSD
 Date Sampled...: 05/01/02 09:00 Date Received...: 05/01/02 18:00 MS Run #.....: 2128105
 Prep Date.....: 05/07/02 Analysis Date...: 05/07/02
 Prep Batch #....: 2128253 Analysis Time...: 16:23
 Dilution Factor: 1 Analyst ID.....: 064667 Instrument ID...: MSD

PARAMETER	SAMPLE	SPIKE	MEASRD	PERCNT			METHOD
	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	
1,1-Dichloroethene	ND	50.0	56.2	ug/kg	112		SW846 8260B
	ND	50.0	59.7	ug/kg	119	6.0	SW846 8260B
Benzene	ND	50.0	53.5	ug/kg	107		SW846 8260B
	ND	50.0	52.7	ug/kg	105	1.5	SW846 8260B
Trichloroethene	ND	50.0	57.2	ug/kg	114		SW846 8260B
	ND	50.0	58.2	ug/kg	116	1.9	SW846 8260B
Toluene	ND	50.0	51.4	ug/kg	103		SW846 8260B
	ND	50.0	52.8	ug/kg	106	2.8	SW846 8260B
Chlorobenzene	ND	50.0	52.5	ug/kg	105		SW846 8260B
	ND	50.0	50.2	ug/kg	100	4.5	SW846 8260B

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Bromofluorobenzene	93	(65 - 135)
	95	(65 - 135)
1,2-Dichloroethane-d4	106	(60 - 140)
	87	(60 - 140)
Toluene-d8	95	(70 - 130)
	103	(70 - 130)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>
TPH (as Gasoline)	96	(70 - 140)			SW846 8015B
	95	(70 - 140)	1.2	(0-40)	SW846 8015B
<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>			
a,a,a-Trifluorotoluene (TFT)	105			(60 - 130)	
	107			(60 - 130)	

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

PARAMETER	SAMPLE	SPIKE	MEASRD	PERCNT			
	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	METHOD
TPH (as Gasoline)	ND	5.00	4.79	mg/kg	96		SW846 8015B
	ND	5.00	4.73	mg/kg	95	1.2	SW846 8015B

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
a,a,a-Trifluorotoluene (TFT)	RECOVERY	LIMITS
	105	(60 - 130)
	107	(60 - 130)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #....: E2E010288 Work Order #....: E0QNX1A4-MS Matrix.....: SOLID
MS Lot-Sample #: E2E010288-001 E0QNX1A5-MSD
Date Sampled...: 05/01/02 09:00 Date Received...: 05/01/02 18:00 MS Run #.....: 2122137
Prep Date.....: 05/02/02 Analysis Date...: 05/03/02
Prep Batch #...: 2122297 Analysis Time...: 22:26
Dilution Factor: 1 Analyst ID.....: 356074 Instrument ID...: G03

<u>PARAMETER</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>RPD</u>	<u>LIMITS</u>	<u>METHOD</u>
<u>RECOVERY</u>		<u>LIMITS</u>		<u>RPD</u>	
TPH (as Diesel)	77	(55 - 130)			SW846 8015B
	77	(55 - 130)	0.17	(0-35)	SW846 8015B
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>		<u>RECOVERY</u>	
	<u>RECOVERY</u>			<u>LIMITS</u>	
Benzo(a)pyrene	84			(60 - 130)	
	85			(60 - 130)	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #....: E2E010288 Work Order #....: E0QNX1A4-MS Matrix.....: SOLID
MS Lot-Sample #: E2E010288-001 E0QNX1A5-MSD
Date Sampled....: 05/01/02 09:00 Date Received...: 05/01/02 18:00 MS Run #.....: 2122137
Prep Date.....: 05/02/02 Analysis Date...: 05/03/02
Prep Batch #....: 2122297 Analysis Time...: 22:26
Dilution Factor: 1 Analyst ID.....: 356074 Instrument ID...: G03

<u>PARAMETER</u>	SAMPLE	SPIKE	MEASRD	PERCNT		
	<u>AMOUNT</u>	<u>AMT</u>	<u>AMOUNT</u>	<u>UNITS</u>	<u>RECVRY</u>	<u>RPD</u>
TPH (as Diesel)	ND	250	192	mg/kg	77	SW846 8015B
	ND	250	192	mg/kg	77	0.17 SW846 8015B

<u>SURROGATE</u>	PERCENT		RECOVERY
	<u>RECOVERY</u>	<u>LIMITS</u>	
Benzo(a)pyrene	84	(60 - 130)	
	85	(60 - 130)	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>
Acenaphthene	73	(50 - 150)			SW846 8310
	72	(50 - 150)	1.4	(0-50)	SW846 8310
Acenaphthylene	74	(50 - 150)			SW846 8310
	73	(50 - 150)	0.93	(0-50)	SW846 8310
Anthracene	70	(50 - 150)			SW846 8310
	69	(50 - 150)	2.6	(0-50)	SW846 8310
Benzo (a) anthracene	79	(50 - 150)			SW846 8310
	73	(50 - 150)	7.2	(0-50)	SW846 8310
Benzo (a) pyrene	71	(49 - 107)			SW846 8310
	69	(49 - 107)	3.3	(0-53)	SW846 8310
Benzo (b) fluoranthene	76	(50 - 150)			SW846 8310
	72	(50 - 150)	5.4	(0-50)	SW846 8310
Benzo (ghi) perylene	76	(50 - 150)			SW846 8310
	73	(50 - 150)	3.6	(0-50)	SW846 8310
Benzo (k) fluoranthene	74	(50 - 150)			SW846 8310
	72	(50 - 150)	3.0	(0-50)	SW846 8310
Chrysene	78	(50 - 150)			SW846 8310
	75	(50 - 150)	4.2	(0-50)	SW846 8310
Dibenz (a, h) anthracene	58	(50 - 150)			SW846 8310
	56	(50 - 150)	2.9	(0-50)	SW846 8310
Fluoranthene	74	(50 - 150)			SW846 8310
	73	(50 - 150)	1.8	(0-50)	SW846 8310
Fluorene	72	(43 - 112)			SW846 8310
	71	(43 - 112)	1.0	(0-56)	SW846 8310
Indeno (1, 2, 3-cd) pyrene	78	(54 - 114)			SW846 8310
	76	(54 - 114)	3.1	(0-51)	SW846 8310
Naphthalene	71	(44 - 110)			SW846 8310
	69	(44 - 110)	1.9	(0-50)	SW846 8310
Phenanthrene	73	(50 - 150)			SW846 8310
	73	(50 - 150)	0.33	(0-50)	SW846 8310
Pyrene	73	(49 - 115)			SW846 8310
	74	(49 - 115)	1.0	(0-54)	SW846 8310
<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>			
1-Methylnaphthalene	74	(41 - 115)			
	74	(41 - 115)			

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: E2E010288 Work Order #...: E0QNX1DA-MS Matrix.....: SOLID
 MS Lot-Sample #: E2E010288-001 E0QNX1DC-MSD
 Date Sampled...: 05/01/02 09:00 Date Received...: 05/01/02 18:00 MS Run #.....: 2123171
 Prep Date.....: 05/03/02 Analysis Date...: 05/07/02
 Prep Batch #...: 2123425 Analysis Time...: 17:40
 Dilution Factor: 1 Analyst ID.....: 033077 Instrument ID...: 3UV

PARAMETER	SAMPLE	SPIKE	MEASRD	PERCNT			METHOD
	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD	
Acenaphthene	ND	1330	970	ug/kg	73		SW846 8310
	ND	1330	957	ug/kg	72	1.4	SW846 8310
Acenaphthylene	ND	667	492	ug/kg	74		SW846 8310
	ND	667	488	ug/kg	73	0.93	SW846 8310
Anthracene	ND	26.6	18.7	ug/kg	70		SW846 8310
	ND	26.6	18.3	ug/kg	69	2.6	SW846 8310
Benzo(a)anthracene	ND	66.7	52.5	ug/kg	79		SW846 8310
	ND	66.7	48.9	ug/kg	73	7.2	SW846 8310
Benzo(a)pyrene	ND	66.7	47.5	ug/kg	71		SW846 8310
	ND	66.7	46.0	ug/kg	69	3.3	SW846 8310
Benzo(b)fluoranthene	ND	26.6	20.2	ug/kg	76		SW846 8310
	ND	26.6	19.1	ug/kg	72	5.4	SW846 8310
Benzo(ghi)perylene	ND	106	80.9	ug/kg	76		SW846 8310
	ND	106	78.1	ug/kg	73	3.6	SW846 8310
Benzo(k)fluoranthene	ND	26.6	19.6	ug/kg	74		SW846 8310
	ND	26.6	19.1	ug/kg	72	3.0	SW846 8310
Chrysene	ND	66.7	52.2	ug/kg	78		SW846 8310
	ND	66.7	50.0	ug/kg	75	4.2	SW846 8310
Dibenz(a,h)anthracene	ND	266	154	ug/kg	58		SW846 8310
	ND	266	150	ug/kg	56	2.9	SW846 8310
Fluoranthene	ND	66.7	49.6	ug/kg	74		SW846 8310
	ND	66.7	48.7	ug/kg	73	1.8	SW846 8310
Fluorene	ND	133	95.5	ug/kg	72		SW846 8310
	ND	133	94.5	ug/kg	71	1.0	SW846 8310
Indeno(1,2,3-cd)pyrene	ND	66.7	52.3	ug/kg	78		SW846 8310
	ND	66.7	50.7	ug/kg	76	3.1	SW846 8310
Naphthalene	ND	667	472	ug/kg	71		SW846 8310
	ND	667	463	ug/kg	69	1.9	SW846 8310
Phenanthrene	ND	53.2	39.0	ug/kg	73		SW846 8310
	ND	53.2	38.9	ug/kg	73	0.33	SW846 8310
Pyrene	ND	133	97.5	ug/kg	73		SW846 8310
	ND	133	98.5	ug/kg	74	1.0	SW846 8310

SURROGATE	PERCENT		RECOVERY LIMITS
	RECOVERY		
1-Methylnaphthalene	74		(41 - 115)
	74		(41 - 115)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: E2E010288

Matrix.....: SOLID

Date Sampled...: 05/01/02 09:00 Date Received...: 05/01/02 18:00

<u>PARAMETER</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>RPD</u>	<u>METHOD</u>	<u>PREPARATION-</u>	<u>WORK</u>
	<u>RECOVERY</u>	<u>LIMITS</u>	<u>RPD</u>		<u>ANALYSIS DATE</u>	<u>ORDER #</u>
MS Lot-Sample #: E2E010288-001 Prep Batch #...: 2122204						
Aluminum	NC	(70 - 115)		SW846 6010B	05/02-05/03/02	E0QNX1A6
	NC	(70 - 115)	(0-25)	SW846 6010B	05/02-05/03/02	E0QNX1A7
		Dilution Factor: 1				
		Analysis Time...: 14:02		Instrument ID...: M01		Analyst ID.....: 021088
		MS Run #.....: 2122173				
Arsenic	103	(75 - 115)		SW846 6010B	05/02-05/03/02	E0QNX1A8
	105	(75 - 115) 2.0	(0-25)	SW846 6010B	05/02-05/03/02	E0QNX1A9
		Dilution Factor: 1				
		Analysis Time...: 14:02		Instrument ID...: M01		Analyst ID.....: 021088
		MS Run #.....: 2122173				
Antimony	33 N	(75 - 115)		SW846 6010B	05/02-05/03/02	E0QNX1CA
	31 N	(75 - 115) 4.4	(0-25)	SW846 6010B	05/02-05/03/02	E0QNX1CC
		Dilution Factor: 1				
		Analysis Time...: 14:02		Instrument ID...: M01		Analyst ID.....: 021088
		MS Run #.....: 2122173				
Barium	97	(80 - 120)		SW846 6010B	05/02-05/03/02	E0QNX1CD
	100	(80 - 120) 2.9	(0-25)	SW846 6010B	05/02-05/03/02	E0QNX1CE
		Dilution Factor: 1				
		Analysis Time...: 14:02		Instrument ID...: M01		Analyst ID.....: 021088
		MS Run #.....: 2122173				
Cadmium	95	(80 - 120)		SW846 6010B	05/02-05/03/02	E0QNX1CF
	97	(80 - 120) 2.4	(0-25)	SW846 6010B	05/02-05/03/02	E0QNX1CG
		Dilution Factor: 1				
		Analysis Time...: 14:02		Instrument ID...: M01		Analyst ID.....: 021088
		MS Run #.....: 2122173				
Chromium	95	(85 - 120)		SW846 6010B	05/02-05/03/02	E0QNX1CH
	100	(85 - 120) 2.7	(0-25)	SW846 6010B	05/02-05/03/02	E0QNX1CJ
		Dilution Factor: 1				
		Analysis Time...: 14:02		Instrument ID...: M01		Analyst ID.....: 021088
		MS Run #.....: 2122173				
Beryllium	99	(80 - 120)		SW846 6010B	05/02-05/03/02	E0QNX1CK
	102	(80 - 120) 2.5	(0-25)	SW846 6010B	05/02-05/03/02	E0QNX1CL
		Dilution Factor: 1				
		Analysis Time...: 14:02		Instrument ID...: M01		Analyst ID.....: 021088
		MS Run #.....: 2122173				

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: E2E010288

Matrix.....: SOLID

Date Sampled...: 05/01/02 09:00 Date Received...: 05/01/02 18:00

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>	<u>PREPARATION-</u>	<u>WORK</u>
						<u>ANALYSIS DATE</u>	<u>ORDER #</u>
Lead	98	(80 - 120)			SW846 6010B	05/02-05/03/02	E0QNX1CM
	100	(80 - 120) 2.3	(0-25)		SW846 6010B	05/02-05/03/02	E0QNX1CN
		Dilution Factor: 1					
				Analysis Time...: 14:02	Instrument ID...: M01		Analyst ID.....: 021088
				MS Run #.....: 2122173			
Selenium	98	(70 - 115)			SW846 6010B	05/02-05/03/02	E0QNX1CP
	102	(70 - 115) 3.9	(0-25)		SW846 6010B	05/02-05/03/02	E0QNX1CQ
		Dilution Factor: 1					
				Analysis Time...: 14:02	Instrument ID...: M01		Analyst ID.....: 021088
				MS Run #.....: 2122173			
Silver	98	(80 - 120)			SW846 6010B	05/02-05/03/02	E0QNX1CR
	100	(80 - 120) 2.0	(0-25)		SW846 6010B	05/02-05/03/02	E0QNX1CT
		Dilution Factor: 1					
				Analysis Time...: 14:02	Instrument ID...: M01		Analyst ID.....: 021088
				MS Run #.....: 2122173			
Cobalt	97	(80 - 120)			SW846 6010B	05/02-05/03/02	E0QNX1CU
	99	(80 - 120) 1.9	(0-25)		SW846 6010B	05/02-05/03/02	E0QNX1CV
		Dilution Factor: 1					
				Analysis Time...: 14:02	Instrument ID...: M01		Analyst ID.....: 021088
				MS Run #.....: 2122173			
Copper	103	(80 - 120)			SW846 6010B	05/02-05/03/02	E0QNX1CW
	107	(80 - 120) 2.7	(0-25)		SW846 6010B	05/02-05/03/02	E0QNX1CX
		Dilution Factor: 1					
				Analysis Time...: 14:02	Instrument ID...: M01		Analyst ID.....: 021088
				MS Run #.....: 2122173			
Molybdenum	96	(80 - 120)			SW846 6010B	05/02-05/03/02	E0QNX1C0
	98	(80 - 120) 1.3	(0-25)		SW846 6010B	05/02-05/03/02	E0QNX1C1
		Dilution Factor: 1					
				Analysis Time...: 14:02	Instrument ID...: M01		Analyst ID.....: 021088
				MS Run #.....: 2122173			
Nickel	96	(80 - 120)			SW846 6010B	05/02-05/03/02	E0QNX1C2
	98	(80 - 120) 1.9	(0-25)		SW846 6010B	05/02-05/03/02	E0QNX1C3
		Dilution Factor: 1					
				Analysis Time...: 14:02	Instrument ID...: M01		Analyst ID.....: 021088
				MS Run #.....: 2122173			

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: E2E010288

Matrix.....: SOLID

Date Sampled...: 05/01/02 09:00 Date Received...: 05/01/02 18:00

PARAMETER	PERCENT	RECOVERY	RPD	METHOD	PREPARATION-	WORK
	RECOVERY	LIMITS	RPD		ANALYSIS DATE	ORDER #
Thallium	98	(75 - 125)		SW846 6010B	05/02-05/03/02	E0QNX1C4
	100	(75 - 125) 2.1 (0-25)		SW846 6010B	05/02-05/03/02	E0QNX1C5
		Dilution Factor: 1				
		Analysis Time...: 14:02		Instrument ID...: M01		Analyst ID.....: 021088
		MS Run #.....: 2122173				
Vanadium	99	(80 - 120)		SW846 6010B	05/02-05/03/02	E0QNX1C6
	103	(80 - 120) 3.0 (0-25)		SW846 6010B	05/02-05/03/02	E0QNX1C7
		Dilution Factor: 1				
		Analysis Time...: 14:02		Instrument ID...: M01		Analyst ID.....: 021088
		MS Run #.....: 2122173				
Zinc	102	(80 - 120)		SW846 6010B	05/02-05/03/02	E0QNX1C8
	105	(80 - 120) 2.1 (0-25)		SW846 6010B	05/02-05/03/02	E0QNX1C9
		Dilution Factor: 1				
		Analysis Time...: 14:02		Instrument ID...: M01		Analyst ID.....: 021088
		MS Run #.....: 2122173				

MS Lot-Sample #: E2E010288-001 Prep Batch #...: 2122206

Mercury	114	(80 - 120)	SW846 7471A	05/02-05/03/02	E0QNX1A2
	112	(80 - 120) 1.8 (0-20)	SW846 7471A	05/02-05/03/02	E0QNX1A3
		Dilution Factor: 1			
		Analysis Time...: 13:35		Instrument ID...: M04	Analyst ID.....: 000023
		MS Run #.....: 2122084			

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

NC The recovery and/or RPD were not calculated.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: E2E010288

Matrix.....: SOLID

Date Sampled...: 05/01/02 09:00 Date Received...: 05/01/02 18:00

SAMPLE PARAMETER	SPIKE AMOUNT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: E2E010288-001 Prep Batch #...: 2122204								
Aluminum								
	6560	200	6980 NC mg/kg			SW846 6010B	05/02-05/03/02	E0QNX1A6
	6560	200	7530 NC mg/kg			SW846 6010B	05/02-05/03/02	E0QNX1A7
			Dilution Factor: 1					
			Analysis Time...: 14:02			Instrument ID...: M01		Analyst ID.....: 021088
			MS Run #.....: 2122173					
Arsenic								
	4.2	200	210 mg/kg	103		SW846 6010B	05/02-05/03/02	E0QNX1A8
	4.2	200	214 mg/kg	105	2.0	SW846 6010B	05/02-05/03/02	E0QNX1A9
			Dilution Factor: 1					
			Analysis Time...: 14:02			Instrument ID...: M01		Analyst ID.....: 021088
			MS Run #.....: 2122173					
Antimony								
	ND	50.0	16.3 N mg/kg	33		SW846 6010B	05/02-05/03/02	E0QNX1CA
	ND	50.0	15.6 N mg/kg	31	4.4	SW846 6010B	05/02-05/03/02	E0QNX1CC
			Dilution Factor: 1					
			Analysis Time...: 14:02			Instrument ID...: M01		Analyst ID.....: 021088
			MS Run #.....: 2122173					
Barium								
	32.9	200	227 mg/kg	97		SW846 6010B	05/02-05/03/02	E0QNX1CD
	32.9	200	234 mg/kg	100	2.9	SW846 6010B	05/02-05/03/02	E0QNX1CE
			Dilution Factor: 1					
			Analysis Time...: 14:02			Instrument ID...: M01		Analyst ID.....: 021088
			MS Run #.....: 2122173					
Cadmium								
	ND	5.00	4.73 mg/kg	95		SW846 6010B	05/02-05/03/02	E0QNX1CF
	ND	5.00	4.85 mg/kg	97	2.4	SW846 6010B	05/02-05/03/02	E0QNX1CG
			Dilution Factor: 1					
			Analysis Time...: 14:02			Instrument ID...: M01		Analyst ID.....: 021088
			MS Run #.....: 2122173					
Chromium								
	12.7	20.0	31.8 mg/kg	95		SW846 6010B	05/02-05/03/02	E0QNX1CH
	12.7	20.0	32.6 mg/kg	100	2.7	SW846 6010B	05/02-05/03/02	E0QNX1CJ
			Dilution Factor: 1					
			Analysis Time...: 14:02			Instrument ID...: M01		Analyst ID.....: 021088
			MS Run #.....: 2122173					

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #....: E2E010288

Matrix.....: SOLID

Date Sampled...: 05/01/02 09:00 **Date Received...:** 05/01/02 18:00

PARAMETER	SAMPLE	SPIKE	MEASRD	PERCNT			PREPARATION- ANALYSIS DATE	WORK ORDER #
	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD		
Beryllium								
	0.23	5.00	5.18	mg/kg	99		SW846 6010B	05/02-05/03/02 E0QNX1CK
	0.23	5.00	5.31	mg/kg	102	2.5	SW846 6010B	05/02-05/03/02 E0QNX1CL
	Dilution Factor: 1							
	Analysis Time...: 14:02							
	Instrument ID...: M01							
	MS Run #.....: 2122173							
Lead								
	2.2	50.0	51.2	mg/kg	98		SW846 6010B	05/02-05/03/02 E0QNX1CM
	2.2	50.0	52.4	mg/kg	100	2.3	SW846 6010B	05/02-05/03/02 E0QNX1CN
	Dilution Factor: 1							
	Analysis Time...: 14:02							
	Instrument ID...: M01							
	MS Run #.....: 2122173							
Selenium								
	ND	200	196	mg/kg	98		SW846 6010B	05/02-05/03/02 E0QNX1CP
	ND	200	203	mg/kg	102	3.9	SW846 6010B	05/02-05/03/02 E0QNX1CQ
	Dilution Factor: 1							
	Analysis Time...: 14:02							
	Instrument ID...: M01							
	MS Run #.....: 2122173							
Silver								
	ND	5.00	4.90	mg/kg	98		SW846 6010B	05/02-05/03/02 E0QNX1CR
	ND	5.00	5.00	mg/kg	100	2.0	SW846 6010B	05/02-05/03/02 E0QNX1CT
	Dilution Factor: 1							
	Analysis Time...: 14:02							
	Instrument ID...: M01							
	Analyst ID.....: 021088							
Cobalt								
	4.1	50.0	52.4	mg/kg	97		SW846 6010B	05/02-05/03/02 E0QNX1CU
	4.1	50.0	53.4	mg/kg	99	1.9	SW846 6010B	05/02-05/03/02 E0QNX1CV
	Dilution Factor: 1							
	Analysis Time...: 14:02							
	Instrument ID...: M01							
	Analyst ID.....: 021088							
Copper								
	6.3	25.0	32.2	mg/kg	103		SW846 6010B	05/02-05/03/02 E0QNX1CW
	6.3	25.0	33.0	mg/kg	107	2.7	SW846 6010B	05/02-05/03/02 E0QNX1CX
	Dilution Factor: 1							
	Analysis Time...: 14:02							
	Instrument ID...: M01							
	Analyst ID.....: 021088							

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: E2E010288

Matrix.....: SOLID

Date Sampled...: 05/01/02 09:00 Date Received...: 05/01/02 18:00

PARAMETER	SAMPLE	SPIKE	MEASRD		PERCNT		PREPARATION-	WORK	ANALYSIS DATE	ORDER #																
	AMOUNT	AMT	AMOUNT	UNITS	RECVRY	RPD																				
Molybdenum																										
	ND	100	96.4	mg/kg	96		SW846 6010B	05/02-05/03/02	E0QNX1C0																	
	ND	100	97.6	mg/kg	98	1.3	SW846 6010B	05/02-05/03/02	E0QNX1C1																	
	Dilution Factor: 1																									
	Analysis Time...: 14:02				Instrument ID...: M01		Analyst ID.....: 021088																			
	MS Run #.....: 2122173																									
Nickel																										
	7.4	50.0	55.2	mg/kg	96		SW846 6010B	05/02-05/03/02	E0QNX1C2																	
	7.4	50.0	56.2	mg/kg	98	1.9	SW846 6010B	05/02-05/03/02	E0QNX1C3																	
	Dilution Factor: 1																									
	Analysis Time...: 14:02				Instrument ID...: M01		Analyst ID.....: 021088																			
	MS Run #.....: 2122173																									
Thallium																										
	0.91	200	198	mg/kg	98		SW846 6010B	05/02-05/03/02	E0QNX1C4																	
	0.91	200	202	mg/kg	100	2.1	SW846 6010B	05/02-05/03/02	E0QNX1C5																	
	Dilution Factor: 1																									
	Analysis Time...: 14:02				Instrument ID...: M01		Analyst ID.....: 021088																			
	MS Run #.....: 2122173																									
Vanadium																										
	19.5	50.0	68.8	mg/kg	99		SW846 6010B	05/02-05/03/02	E0QNX1C6																	
	19.5	50.0	70.9	mg/kg	103	3.0	SW846 6010B	05/02-05/03/02	E0QNX1C7																	
	Dilution Factor: 1																									
	Analysis Time...: 14:02				Instrument ID...: M01		Analyst ID.....: 021088																			
	MS Run #.....: 2122173																									
Zinc																										
	25.9	50.0	77.0	mg/kg	102		SW846 6010B	05/02-05/03/02	E0QNX1C8																	
	25.9	50.0	78.7	mg/kg	105	2.1	SW846 6010B	05/02-05/03/02	E0QNX1C9																	
	Dilution Factor: 1																									
	Analysis Time...: 14:02				Instrument ID...: M01		Analyst ID.....: 021088																			
	MS Run #.....: 2122173																									
MS Lot-Sample #: E2E010288-001 Prep Batch #...: 2122206																										
Mercury																										
	ND	0.167	0.190	mg/kg	114		SW846 7471A	05/02-05/03/02	E0QNX1A2																	
	ND	0.167	0.187	mg/kg	112	1.8	SW846 7471A	05/02-05/03/02	E0QNX1A3																	
	Dilution Factor: 1																									
	Analysis Time...: 13:35				Instrument ID...: M04		Analyst ID.....: 000023																			
	MS Run #.....: 2122084																									

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

NC The recovery and/or RPD were not calculated.

N Spiked analyte recovery is outside stated control limits.

Appendix B

APPENDIX B

SOIL SCREENING LEVEL (SSL) CALCULATIONS

Site-specific Soil Screening Levels (SSLs) Assuming Impacts at Depths of 12 Feet bgs

CAS No.	Chemical	MCL (mg/L)	K _{oc} ^(1,2)	f _{oc} ⁽³⁾	K _d ^(2,4)	H' ⁽¹⁾	O _w ⁽³⁾	O _a ⁽³⁾	P _b ⁽³⁾	AF _T	Site-specific SSL (mg/kg) at AF _T = 1	Site-specific SSL (mg/kg) at AF _T at D=53' x DAF
7429-90-5	Aluminum	2.00E-01	--	5.19E-04	1.5E+03	--	2.53E-01	2.07E-01	1.44E+00	483	3.00E+02	2.90E+06
7440-39-3	Barium	1.00E+00	--	5.19E-04	4.1E+01	--	2.53E-01	2.07E-01	1.44E+00	13	4.12E+01	1.09E+04
7440-41-7	Beryllium	4.00E-03	--	5.19E-04	7.9E+02	--	2.53E-01	2.07E-01	1.44E+00	254	3.16E+00	1.61E+04
7440-43-9	Cadmium	5.00E-03	--	5.19E-04	7.5E+01	--	2.53E-01	2.07E-01	1.44E+00	24	3.76E-01	1.82E+02
16065-83-1	Chromium (trivalent)	5.00E-02	--	5.19E-04	1.8E+06	--	2.53E-01	2.07E-01	1.44E+00	579743	9.00E+04	1.04E+12
7782-49-2	Selenium	5.00E-02	--	5.19E-04	5.0E+00	--	2.53E-01	2.07E-01	1.44E+00	16	2.59E-01	8.53E+01

Notes:

An SSL was not derived for chemicals that do not have promulgated primary MCLs. These chemicals were not included in the assessment of potential for groundwater degradation at concentrations greater than MCLs.

Initial SSL derived using EPA July 1996 Soil Screening Guidance: Technical Background Document, where SSL = MCL [(K_{oc} * f_{oc}) + ((O_w + O_a*H')/P_b)]. AF_T calculated from LARWQCB May 1996 Interim Site Assessment and Cleanup Guidebook which accounts for attenuation in the soil assuming site-specific soil particle distribution and distance between impacts and groundwater table of 53 feet, and default DAF for EPA SSLs of 20 as presented in EPA July 1996 Soil Screening Guidance: Technical Background Document which accounts for limited groundwater mixing.

AF_T = Average attenuation factor based on site lithology (distance to groundwater = 53 feet, 30% sand, 57% silt, and 13% clay).

na = not available

K_{oc} = soil organic carbon-water partition coefficient (L/kg)

f_{oc} = site-specific organic carbon content of soil (kg/kg)

K_d = soil-water partition coefficient (L/kg), K_{oc} × f_{oc}

H' = dimensionless Henry's law constant

O_w = site-specific average water-filled porosity (by volume)

O_a = site-specific average air-filled porosity (by volume)

P_b = dry soil bulk density (kg/L)

⁽¹⁾ Obtained from EPA Region 9 preliminary remediation goal (PRG) physical-chemical data for volatile organic compounds, November 2000

⁽²⁾ Obtained from Risk Assessment Information System (RAIS) Toxicity & Chemical-Specific Factors Data Base, http://risk.lsd.ornl.gov/cgi-bin/tox/TOX_select?select=csf

⁽³⁾ Site-specific average values

⁽⁴⁾ Obtained from EPA Soil Screening Guidance: Technical Background Document (TBD), EPA/540/R-95/128, July 1996, <http://www.epa.gov/oerrpage/superfund/resources/soil/toc.htm>

Derivation of Non-VOC Site-specific AF_T Following RWQCB Guidance (Depths 12 to 65 feet bgs)

CAS No.	Chemical	$K_{oc}^{(1,2,4)}$	$f_{oc}^{(3)}$	$K_d^{(2,4)}$	$H'^{(1)}$	$O_w^{(3)}$	$O_a^{(3)}$	$P_b^{(3)}$	O_t	AF_{max}	Distance to Groundwater (feet)			
											AF_D	AF_T	AF_T	
7429-90-5	Aluminum	--	--	1.5E+03	--	2.53E-01	2.07E-01	1.44E+00	4.59E-01	8545	53	1763.41	483.18	483
7440-39-3	Barium	--	--	4.1E+01	--	2.53E-01	2.07E-01	1.44E+00	4.59E-01	234.5	53	48	13.26	13
7440-41-7	Beryllium	--	--	7.9E+02	--	2.53E-01	2.07E-01	1.44E+00	4.59E-01	4500.9	53	929	254.50	254
7440-43-9	Cadmium	--	--	7.5E+01	--	2.53E-01	2.07E-01	1.44E+00	4.59E-01	428.2	53	88	24.21	24
16065-83-1	Chromium (trivalent)	--	--	1.8E+06	--	2.53E-01	2.07E-01	1.44E+00	4.59E-01	10253012.4	53	2115849	579742.61	579743
7782-49-2	Selenium	--	--	5.0E+00	--	2.53E-01	2.07E-01	1.44E+00	4.59E-01	29.5	53	6	1.67	2

na = not available

An AF_T was not derived for chemicals that do not have promulgated primary MCLs. These chemicals were not included in the assessment of potential further degradation to groundwater quality.

AFT were calculated assuming that the depth between chemical impacts and groundwater is 53 feet and that the soil within this portion of the soil column is comprised of 30% sand, 57% silt, and 13% clay.

K_{oc} = soil organic carbon-water partition coefficient (L/kg)

f_{oc} = site-specific organic carbon content of soil (kg/kg)

K_d = soil-water partition coefficient (L/kg), $K_{oc} \times f_{oc}$

H' = dimensionless Henry's law constant

O_w = site-specific average water-filled porosity (by volume)

O_a = site-specific average air-filled porosity (by volume)

O_t = site-specific average total porosity (by volume)

P_b = dry soil bulk density (kg/L)

⁽¹⁾ Obtained from EPA Region 9 preliminary remediation goal (PRG) physical-chemical data for volatile organic compounds, November 2000

⁽²⁾ Obtained from Risk Assessment Information System (RAIS) Toxicity & Chemical-Specific Factors Data Base, January 2001, http://risk.lsd.ornl.gov/cgi-bin/tox/TOX_select?select=csf

⁽³⁾ Site-specific average values

⁽⁴⁾ Obtained from EPA Soil Screening Guidance: Technical Background Document (TBD), EPA/540/R-95/128, July 1996, <http://www.epa.gov/oerrpage/superfund/resources/soil/toc.htm>

Geotechnical Parameters for the BRC Former C-6 Facility, Los Angeles, California

Sample ID	Date Sampled	Depth (feet bgs)	Sieve Analysis (Soil Type)	Dry Bulk Density (kg/L)	Moisture Content (percent by weight)	Total Porosity (fraction by volume)	Air-filled Porosity (fraction by volume)	Water-filled Porosity (fraction by volume)	TOC* (mg/kg)	f _{oc} (fraction by weight)
EIA290176-001 (I-34-5)	1/29/2001	5	Silt	1.51	15.9	0.43	0.19	0.24	520	0.0005
EIA290176-010 (D-29-5)	1/29/2001	5	Silt	1.44	20.3	0.46	0.16	0.29	2350	0.0024
EIA290176-018 (I-25-5) Average	1/29/2001	5	Silt	1.34 1.43	17.8 18.0	0.49 0.46	0.26 0.20	0.24 0.26	690 1187	0.0007 0.0012
EIA290176-004 (I-34-20)	1/29/2001	20	Silt	1.54	17.5	0.42	0.15	0.27	330	0.0003
EIA290176-012 (D-29-20)	1/29/2001	20	Silt	1.55	17.0	0.41	0.15	0.26	430	0.0004
EIA290176-021 (I-25-20) Average	1/29/2001	20	Silt	1.37 1.49	20.2 18.2	0.48 0.44	0.20 0.17	0.28 0.27	410 390	0.0004 0.0004
EIA290176-007 (I-34-50)	1/29/2001	50	Fine sand	1.35	4.4	0.51	0.45	0.06	230	0.0002
EIA290176-015 (D-29-50)	1/29/2001	50	Fine sand	1.36	19.5	0.49	0.22	0.26	560	0.0006
EIA290176-024 (I-25-50) Average	1/29/2001	50	Silt	1.34 1.35	24.3 16.1	0.51 0.50	0.18 0.28	0.32 0.22	470 420	0.0005 0.0004

Weighted Average (depths 12 to 65 feet bgs)

1.44

0.46

0.21

0.25

0.0005

The weighted fraction by weight assumes the 5-foot sample is representative of the top 20 feet, the 20-foot sample of depths between 20 and 50 feet, and the 50-foot sample of depths between 50 and 65 feet bgs.

Notes:

The air-filled porosity values were calculated from gravimetric data, not volumetric data.

* f_{oc} = the weight fraction of organic carbon in soil = TOC/1,000,000

Soil Particle Size Distribution for the BRC Former C-6 Facility, Los Angeles, California

Sample ID	Date Sampled	Depth (feet bgs)	Sieve Analysis (Soil Type)	Median Grain Size (mm)	Particle Size Distribution, wt. Percent						
					Gravel	Sand Size				Silt	Clay
						Coarse	Medium	Fine	TOTAL		
EIA290176-001 (I-34-5)	1/29/2001	5	Silt	0.029	0.00	0.00	0.22	17.60	17.82	69.80	12.37
EIA290176-010 (D-29-5)	1/29/2001	5	Silt	0.027	0.00	0.00	0.02	17.00	17.02	68.41	14.58
EIA29176-018 (I-25-5)	1/29/2001	5	Silt	0.026	0.00	0.00	0.39	14.86	15.25	68.78	15.97
Average									16.70	69.00	14.31
EIA290176-004 (I-34-20)	1/29/2001	20	Silt	0.032	0.00	0.00	0.00	31.19	31.19	54.83	13.99
EIA290176-012 (D-29-20)	1/29/2001	20	Silt	0.036	0.00	0.00	0.90	27.59	28.49	59.67	11.85
EIA29176-021 (I-25-20)	1/29/2001	20	Silt	0.020	0.00	0.00	0.00	11.21	11.21	69.07	19.72
Average									23.63	61.19	15.19
EIA290176-007 (I-34-50)	1/29/2001	50	Fine sand	0.151	0.00	0.00	0.57	79.33	79.90	17.39	2.71
EIA29176-015 (D-29-50)	1/29/2001	50	Fine sand	0.083	0.00	0.00	3.26	47.93	51.19	39.79	9.01
EIA29176-024 (I-25-50)	1/29/2001	50	Silt	0.027	0.00	0.00	0.04	21.27	21.31	64.99	13.70
Average									50.80	40.72	8.47

Weighted Average (depths 12 to 65 feet bgs)

0.30	0.57	0.13
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The weighted average assumes the 5-foot sample is representative of the top 20 feet, the 20-foot sample of depths between 20 and 50 feet, and the 50-foot sample of depths between 50 and 65 feet bgs.